

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.02.95  
Test oil : ISO 4113

Combination No. : 0403246041

Injection pump  
Pump designation : PES6MW100/720RS1522  
EP type number : 0413206023

Governor  
Governor design. : RQV300...1300MW148  
: -2  
Governor no. : 0420083323

Cust. part No. : 0250748902

Customer-spec. information

Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 177.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1680750089

Outside diameter : 8.0

AD:

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 14.40  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0

Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  


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 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0  
 2nd speed rpm : 300  
 Rack travel in mm : 4.40  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 0.92  
 Tolerance mm : + 0.25  
 Rated speed rpm : 1355  
 guide sleeve  
 travel mm : 9.33  
 Tolerance mm : + 0.25  
 Rated speed rpm : 1078  
 guide sleeve  
 travel mm : 7.06  
 Tolerance mm : + 0.25  
 Rated speed rpm : 514  
 guide sleeve  
 travel mm : 2.14  
 Tolerance mm : + 0.25  
 Rated speed rpm : 564  
 guide sleeve  
 travel mm : 2.47  
 Tolerance mm : + 0.25  
 Rated speed rpm : 750  
 guide sleeve  
 travel mm : 4.02  
 Tolerance mm : + 0.25  
 Rated speed rpm : 1720

guide sleeve  
 travel mm : 13.50  
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1500  
 Rack travel in mm : 10.00  
 Tolerance mm : + 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 1200  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 133.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

RATED SPEED

control lever  
 position degree : 120.0  
 tolerance degree : + 4.0  
 rack travel mm : 13.40  
 Rated speed rpm : 1345  
 Tolerance 1/min : + 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1495  
 Tolerance 1/min : + 15  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1600

LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree : + 4.0

Testing:



Rated speed rpm : 300  
rack travel mm : 4.40  
Tolerance mm : ± 0.10

Rated speed rpm : 200  
CRT mm min. : > 5.00

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#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 14.40  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 14.40  
Tolerance mm : ± 0.10

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#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 14.40  
Tolerance mm : ± 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 800  
rack travel mm : 5.30  
Tolerance mm : ± 0.10

Pressure hPa : 450  
rack travel mm : 3.00  
Tolerance mm : ± 0.10

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#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 200  
Check  
speed 1/min : < 220

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 46.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

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#### BREAKAWAY

Rack travel in mm : 13.40  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

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#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 4.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.03.95  
Test oil : ISO 4113  
Combination No. : 0403276005  
Injection pump  
Pump designation : PES6MW100/720RS1517  
                  : -3  
EP type number : 0413206020  
Governor  
Governor design. : RSV350...1200MWOA355  
Governor no. : 0420085228  
Cust. part No. : 0250740102

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 100.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1419992198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1688901101  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1680750089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

Test hydr. locking device for starting with 800...1200 hPa air pressure.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0  
Prestroke mm : 4.55  
Tolerance mm : + 0.05  
test only : + 0.10  
Rack travel in mm : 21.00  
Firing order : 1- 5- 3- 6- 2-  
                  : 4  
Phasing : 0-60-120-180-240  
          : -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.15  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0

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Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

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Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

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Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

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Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

2nd speed rpm : 350

Rack travel in mm : 3.00  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0

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Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

RATED SPEED

control lever  
position degree : 96.0  
tolerance degree : ± 4.0

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1315

rack travel mm : 10.15  
Rated speed rpm : 1.5  
Tolerance 1/min : ± 5

LOW IDLE

control lever  
position degree : 66.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 3.00  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 390  
Tolerance 1/min : ± 30

Rated speed rpm : 100  
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 11.15  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 11.15

Tolerance mm : ± 0.10

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ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 11.15  
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.20  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 380  
rack travel mm : 10.90  
Tolerance mm : ± 0.10

Pressure hPa : 300  
rack travel mm : 10.50  
Tolerance mm : ± 0.10

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FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 73.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

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STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

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LOW IDLE

Rated speed rpm : 350  
rack travel mm : 3.00  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.03.95  
Test oil : ISO 4113

Combination No. : 0403276006

Injection pump  
Pump designation : PES6MW100/720RS1517  
: -3  
EP type number : 0413206020

Governor  
Governor design. : RSV350...1200MWOA355  
: -1  
Governor no. : 0420085229

Cust. part No. : 0250740202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 120.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

Test hydr. locking device for starting with 800...1200 hPa air pressure.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

Check tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 103.0

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Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

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Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

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Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

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Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

2nd speed rpm : 350

Rack travel in mm : 3.10  
Tolerance mm : +- 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 103.0

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Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

RATED SPEED

control lever  
position degree : 98.0  
tolerance degree : +- 4.0

rack travel mm : 1.00  
Tolerance mm : +- 0.70  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1320

rack travel mm : 10.40  
Rated speed rpm : 1.5  
Tolerance 1/min : +- 5

LOW IDLE

control lever  
position degree : 68.0  
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 3.10  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 390  
Tolerance 1/min : +- 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 11.45  
Tolerance mm : +- 0.05

Rated speed rpm : 750  
rack travel mm : 11.45

Tolerance mm : ± 0.10

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ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 11.45  
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.85  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 530  
rack travel mm : 11.00  
Tolerance mm : ± 0.10

Pressure hPa : 350  
rack travel mm : 10.00  
Tolerance mm : ± 0.10

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FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 64.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

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STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

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LOW IDLE

Rated speed rpm : 350  
rack travel mm : 3.10  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.03.95  
Test oil : ISO 4113  
  
Combination No. : 0403276007  
  
Injection pump  
Pump designation : PES6MW100/720RS1517  
                  : -3  
EP type number : 0413206020  
  
Governor  
Governor design. : RSV350...1200MWOA355  
                  : -2  
Governor no. : 0420085230  
  
Cust. part No. : 0250740302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 140.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1419992198  
  
Inlet press. bar : 1.5  
  
Test nozzle holde  
assembly : 1688901101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
  
Test lines : 1680750089  
  
Outside diameter : 8.0

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x inside diameter : 3.0  
x length mm : 600

REMARKS

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

Test hydr. locking device for starting with 800...1200 hPa air pressure.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 4.55  
Tolerance mm : + 0.05  
  
test only : + 0.10  
  
Rack travel in mm : 21.00  
  
Firing order : 1- 5- 3- 6- 2-  
                  : 4  
  
Phasing : 0-60-120-180-240  
          : -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1200  
  
Rack travel in mm : 13.00  
Tolerance mm : + 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	:	118.0
<hr/>		
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm <sup>3</sup> /1000S.	:	+ 3.0
<hr/>		
Speed Tolerance cm <sup>3</sup> /1000 strokes	:	3.5
<hr/>		
Check tolerance cm <sup>3</sup> /1000S.	:	6.0
<hr/>		
Del. quantity cm <sup>3</sup> /1000 strokes	:	12.0
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 2.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.5
Speed Tolerance cm <sup>3</sup> /1000 strokes	:	3.5
Check tolerance cm <sup>3</sup> /1000S.	:	5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800
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Rack travel in mm	:	0.50
Tolerance mm	:	+ 0.20
<hr/>		
governor spring pre-tension click setting x	:	4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1200
Aneroid pressure hPa	:	1000
Del. quantity cm <sup>3</sup> /1000 strokes	:	118.0
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 3.0

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Speed Tolerance cm <sup>3</sup> /1000 strokes	:	3.5
Check tolerance cm <sup>3</sup> /1000S.	:	6.0

RATED SPEED

control lever position degree	:	96.0
tolerance degree	:	+ 4.0
<hr/>		
rack travel mm	:	12.00
Rated speed rpm	:	1245
Tolerance 1/min	:	+ 5
<hr/>		
rack travel mm	:	1.00
Tolerance mm	:	+ 0.70
Rated speed rpm	:	1400

LOW IDLE

control lever position degree	:	66.0
tolerance degree	:	+ 4.0

Testing:

Rated speed rpm	:	350
rack travel mm	:	3.30
Tolerance mm	:	+ 0.10
<hr/>		
rack travel mm	:	2.00
Rated speed rpm	:	100
CRT mm min.	:	> 19.00

TORQUE CONTROL

Rated speed rpm	:	1200
rack travel mm	:	13.00
Tolerance mm	:	+ 0.05
<hr/>		
Rated speed rpm	:	750
rack travel mm	:	13.00
Tolerance mm	:	+ 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 13.00  
Tolerance mm : ± 0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.65  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 700

Pressure hPa : 350  
rack travel mm : 10.00  
Tolerance mm : ± 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 115.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 1245  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.03.95  
Test oil : ISO 4113  
  
Combination No. : 0403276008  
  
Injection pump  
Pump designation : PES6MW100/720RS1517  
: -2  
EP type number : 0413206019  
  
Governor  
Governor design. : RSV350...1300MWOA354  
Governor no. : 0420085227  
  
Cust. part No. : 0250740502

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 177.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1419992198  
  
Inlet press. bar : 1.5  
  
Test nozzle holder  
assembly : 1688901101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1680750089  
  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

---

## REMARKS

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

Test hydr. locking device for starting with 800...1200 hPa air pressure.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
  
test only : ± 0.10  
  
Rack travel in mm : 21.00  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

---

## BASIC SETTING

Rated speed rpm : 1300  
  
Rack travel in mm : 14.40  
Tolerance mm : ± 0.05

---

Del. quantity cm <sup>3</sup> /1000 strokes	:	133.0
<hr/>		
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.0
<hr/>		
Spreed Tolerance cm <sup>3</sup> /1000 strokes	:	5.0
<hr/>		
Check tolerance cm <sup>3</sup> /1000S.	:	8.0
<hr/>		
Del. quantity cm <sup>3</sup> /1000 strokes	:	12.0
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 2.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.5
Spreed Tolerance cm <sup>3</sup> /1000 strokes	:	2.0
Check tolerance cm <sup>3</sup> /1000S.	:	4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800
<hr/>		
Rack travel in mm	:	0.50
Tolerance mm	:	+ 0.20
<hr/>		
governor spring pre-tension click setting x	:	4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1300
Aneroid pressure hPa	:	1200
Del. quantity cm <sup>3</sup> /1000 strokes	:	133.0
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.0

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Spreed Tolerance cm <sup>3</sup> /1000 strokes	:	5.0
Check tolerance cm <sup>3</sup> /1000S.	:	8.0

RATED SPEED

control lever position degree	:	104.0
tolerance degree	:	+ 4.0
<hr/>		
rack travel mm	:	1.00
Tolerance mm	:	+ 0.70
Rated speed rpm	:	1600
<hr/>		
rack travel mm	:	4.00
Rated speed rpm	:	1465
<hr/>		
rack travel mm	:	13.40
Rated speed rpm	:	1345
Tolerance 1/min	:	+ 5

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm	:	350
rack travel mm	:	4.00

Testing:

rack travel mm	:	2.00
Rated speed rpm	:	430
Tolerance 1/min	:	+ 30
<hr/>		
Rated speed rpm	:	100
<hr/>		
CRT mm min.	:	> 19.00

TORQUE CONTROL

Rated speed rpm	:	1300
rack travel mm	:	14.40
Tolerance mm	:	+ 0.05
<hr/>		
Rated speed rpm	:	750
rack travel mm	:	14.40
Tolerance mm	:	+ 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 14.40  
Tolerance mm : ± 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 800  
rack travel mm : 4.30  
Tolerance mm : ± 0.10

Pressure hPa : 450  
rack travel mm : 1.90  
Tolerance mm : ± 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 46.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.03.95  
Test oil : ISO 4113

Combination No. : 0403276009

Injection pump  
Pump designation : PES6MW100/720RS1517  
: -2  
EP type number : 0413206019

Governor  
Governor design. : RSV350...1200MWA357  
Governor no. : 0420085233

Cust. part No. : 0250740402

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 155.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

Test hydr. locking device for starting with 800...1200 hPa air pressure.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 13.30  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 118.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
<hr/>	
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 4.5
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 7.0
<hr/>	
Del. quantity cm <sup>3</sup> /1000 strokes	: 12.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.5
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 2.0
Check tolerance cm <sup>3</sup> /1000S.	: 4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
<hr/>	
governor spring pre-tension click setting x	: 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1200
Aneroid pressure hPa	: 1300
Del. quantity cm <sup>3</sup> /1000 strokes	: 118.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0

Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 4.5
Check tolerance cm <sup>3</sup> /1000S.	: 7.0

RATED SPEED

control lever position degree	: 108.0
tolerance degree	: ± 4.0
<hr/>	
rack travel mm	: 1.00
Tolerance mm	: ± 0.70
Rated speed rpm	: 1450
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1375
<hr/>	
rack travel mm	: 12.30
Rated speed rpm	: 1245
Tolerance 1/min	: ± 5

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm	: 350
rack travel mm	: 3.90

Testing:

rack travel mm	: 2.00
Rated speed rpm	: 430
<hr/>	
Rated speed rpm	: 100
CRT mm min.	: > 19.00

TORQUE CONTROL

Rated speed rpm	: 1200
rack travel mm	: 13.30
Tolerance mm	: ± 0.05
<hr/>	
Rated speed rpm	: 750
rack travel mm	: 13.30
Tolerance mm	: ± 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING



Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 13.30  
Tolerance mm : +- 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : +- 0.10

Rated speed rpm : 500

Pressure hPa : 600  
rack travel mm : 3.00  
Tolerance mm : +- 0.10

Pressure hPa : 300  
rack travel mm : 1.20  
Tolerance mm : +- 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 117.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 48.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 8.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.03.95  
Test oil : ISO 4113  
  
Combination No. : 0403446177  
  
Injection pump  
Pump designation : PES6MW100/720RS1144  
EP type number : 0413406138  
  
Governor  
Governor design. : RQV300...1300MW48  
Governor no. : 0420083066  
  
Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366A  
Power KW : 125.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1417413047  
  
Inlet press. bar : 1.5  
  
Test nozzle holde  
assembly : 1688901101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test Lines : 1680750015  
  
Outside diameter : 6.0  
x inside diameter : 3.0

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x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.75  
Tolerance mm : ± 0.05  
  
test only : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300  
  
Rack travel in mm : 11.05  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0  
 2nd speed rpm : 300  
 Rack travel in mm : 7.90  
 Tolerance mm : ± 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1280  
 Rack travel in mm : 16.50  
 Tolerance mm : ± 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 78.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

---

RATED SPEED

control lever  
 position degree : 113.0

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tolerance degree : ± 4.0  
 rack travel mm : 10.00  
 Rated speed rpm : 1345  
 Tolerance 1/min : ± 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1440  
 Tolerance 1/min : ± 15  
 rack travel mm : 0.50  
 Tolerance mm : ± 0.50  
 Rated speed rpm : 1550

---

LOW IDLE

control lever  
 position degree : 83.0  
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
 rack travel mm : 7.90  
 Tolerance mm : ± 1.10  
 Rated speed rpm : 100  
 CRT mm min. : > 8.70

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 415

---

TORQUE CONTROL

Rated speed rpm : 1300  
 rack travel mm : 11.05  
 Tolerance mm : ± 0.05  
 Rated speed rpm : 800  
 rack travel mm : 11.90  
 Tolerance mm : ± 0.10  
 Rated speed rpm : 585  
 rack travel mm : 12.10  
 Tolerance mm : ± 0.10  
 Rated speed rpm : 1100  
 rack travel mm : 11.20  
 Tolerance mm : ± 0.10

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 230  
Check  
speed 1/min : < 250

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 585  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 10.00  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 7.90  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.03.95  
Test oil : ISO 4113

Combination No. : 0403446207

Injection pump  
Pump designation : PES6MW100/72ORS1144  
EP type number : 0413406138

Governor  
Governor design. : RQ300/1300MW96  
Governor no. : 0420082032

Cust. part No. : 0160747802

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366A  
Power KW : 125.0

---

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750015

Outside diameter : 6.0

x inside diameter : 3.0

A23

x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

---

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0  
 2nd speed rpm : 300  
 Rack travel in mm : 7.90  
 Tolerance mm : +- 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1200  
 Rack travel in mm : 13.50  
 Tolerance mm : +- 0.80

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 78.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

---

RATED SPEED

control lever  
 position degree : 100.0  
 tolerance degree : +- 4.0  
 rack travel mm : 10.00

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Rated speed rpm : 1345  
 Tolerance 1/min : +- 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1440  
 Tolerance 1/min : +- 15  
 rack travel mm : 0.50  
 Tolerance mm : +- 0.50  
 Rated speed rpm : 1550

---

LOW IDLE

control lever  
 position degree : 77.0  
 tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300  
 rack travel mm : 7.90  
 Tolerance mm : +- 0.10  
 rack travel mm : 2.00  
 Rated speed rpm : 100  
 CRT mm min. : > 9.00

---

TORQUE CONTROL

Rated speed rpm : 1300  
 rack travel mm : 11.05  
 Tolerance mm : +- 0.05  
 Rated speed rpm : 800  
 rack travel mm : 11.90  
 Tolerance mm : +- 0.10  
 Rated speed rpm : 585  
 rack travel mm : 12.10  
 Tolerance mm : +- 0.10  
 Rated speed rpm : 1100  
 rack travel mm : 11.20  
 Tolerance mm : +- 0.10

---

START CUT-OUT

Rated speed rpm : > 100  
 Check  
 speed 1/min : > 80  
 Rated speed rpm : < 180  
 Check  
 speed 1/min : < 200

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 585  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 10.00  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 7.90  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.03.95  
Test oil : ISO 4113

Combination No. : 0403476085

Injection pump  
Pump designation : PES6MW100/72ORS1205  
EP type number : 0413406195

Governor  
Governor design. : RSV350...1300MWOA329  
: -7  
Governor no. : 0420085142

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 366 LA  
Power KW : 184.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

Test hydr. locking device for starting with 500...1000 hPa air pressure.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± .05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1280

Rack travel in mm : 15.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0



Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0  


---

 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0  
 2nd speed rpm : 350  
 Rack travel in mm : 6.40  
 Tolerance mm : + 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800  
 Rack travel in mm : 0.65  
 Tolerance mm : + 0.35  
 governor spring  
 pre-tension  
 click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1280  
 Aneroid pressure  
 hPa : 1200  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 124.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0  
 Spreed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

RATED SPEED

control lever  
 position degree : 100.0  
 tolerance degree : + 4.0  
 rack travel mm : 14.50  
 Rated speed rpm : 1335  
 Tolerance 1/min : + 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1435  
 Tolerance 1/min : + 15  
 rack travel mm : 1.00  
 Tolerance mm : + 0.70  
 Rated speed rpm : 1580

LOW IDLE

control lever  
 position degree : 69.0  
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 350  
 rack travel mm : 6.40  
 Tolerance mm : + 0.10  
 rack travel mm : 2.00  
 Rated speed rpm : 100  
 CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1280  
 rack travel mm : 15.55  
 Tolerance mm : + 0.05  
 Rated speed rpm : 800  
 rack travel mm : 15.55  
 Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 15.55  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 11.35  
Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 650  
rack travel mm : 14.00  
Tolerance mm : ± 0.10

Pressure hPa : 450  
rack travel mm : 12.80  
Tolerance mm : ± 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 48.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

BREAKAWAY

Rack travel in mm : 14.50  
Rated speed rpm : 1335  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 115.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

LOW IDLE

Rated speed rpm : 0  
rack travel mm : 6.40  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.03.95  
Test oil : ISO 4113  
Combination No. : 0403476138  
Injection pump  
Pump designation : PES6MW100/72ORS1130  
: -3  
EP type number : 0413406235  
Governor  
Governor design. : RSV350...1300MWOA318  
Governor no. : 0420085052  
Cust. part No. : 0250748802

Customer-spec. information

Customer : MB-NFZ  
Motor : OM 366 A  
Power KW : 125.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.7<sup>8</sup>  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 1.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1280

Rack travel in mm : 11.10  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

2nd speed rpm : 350

Rack travel in mm : 6.40  
 Tolerance mm : ± 0.20

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.5

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800

Rack travel in mm : 0.65  
 Tolerance mm : ± 0.35

governor spring  
 pre-tension  
 click setting x : 6.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1280  
 Aneroid pressure  
 hPa : -

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 77.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0

Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

RATED SPEED

control lever  
 position degree : 107.0  
 tolerance degree : ± 4.0

rack travel mm : 10.00  
 Rated speed rpm : 1325  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 1395  
 Tolerance 1/min : ± 15

rack travel mm : 1.00  
 Tolerance mm : ± 0.70  
 Rated speed rpm : 1560

LOW IDLE

control lever  
 position degree : 78.0  
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350  
 rack travel mm : 6.40  
 Tolerance mm : ± 0.10

rack travel mm : 2.00  
 Rated speed rpm : 470  
 Tolerance 1/min : ± 30

Rated speed rpm : 100  
 CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1280  
 rack travel mm : 11.10  
 Tolerance mm : ± 0.10

Rated speed rpm : 750  
 rack travel mm : 11.60  
 Tolerance mm : ± 0.05

Rated speed rpm : 825  
 rack travel mm : 11.40  
 Tolerance mm : ± 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

BREAKAWAY

Rack travel in mm : 10.00  
Rated speed rpm : 1325  
Tolerance 1/min : +- 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 8.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 6.40  
Tolerance mm : +- 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.03.95  
Test oil : ISO 4113

Combination No. : 0400846559

Injection pump  
Pump designation : PES6A90D410RS2710  
EP type number : 0410896082

Governor  
Governor design. : RQV300...1400AB1065  
: -9L  
Governor no. : 0420212202

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 366  
Power KW : 92.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0681343009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1680750015

Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.30  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 5.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 10.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0  
 2nd speed rpm : 300  
 Rack travel in mm : 8.80  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1500  
 Rack travel in mm : 16.50  
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 59.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 0.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 2.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0

RATED SPEED

control lever  
 position degree : 111.0  
 tolerance degree : + 4.0  
 rack travel mm : 9.30  
 Rated speed rpm : 1445  
 Tolerance 1/min : + 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1555  
 Tolerance 1/min : + 15  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1650

LOW IDLE

control lever  
 position degree : 75.0  
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
 rack travel mm : 8.80  
 Tolerance mm : + 0.10  
 Rated speed rpm : 100  
 CRT mm min. : > 10.30

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 655

TORQUE CONTROL

Rated speed rpm : 1400  
 rack travel mm : 10.35  
 Tolerance mm : + 0.05  
 Rated speed rpm : 500  
 rack travel mm : 11.40  
 Tolerance mm : + 0.05  
 Rated speed rpm : 750  
 rack travel mm : 11.10  
 Tolerance mm : + 0.10  
 Rated speed rpm : 1100  
 rack travel mm : 10.40  
 Tolerance mm : + 0.15

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 46.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 49.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.5

---

BREAKAWAY

Rack travel in mm : 9.30  
Rated speed rpm : 1445  
Tolerance 1/min : +- 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 17.20  
Tolerance mm : +- 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 7.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 10.0

---

LOW IDLE

806

Rated speed rpm : 300  
rack travel mm : 8.80  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.03.95  
Test oil : ISO 4113  
Combination No. : 0400865027  
Injection pump  
Pump designation : PES5A80D410/3RS2526  
EP type number : 0410885004  
Governor  
Governor design. : RSV325...900A1C602  
: -5L  
Governor no. : 0420232605  
Cust. part No. : 0423 1362 KY0150-17

## Customer-spec. information

Customer : KHD  
Motor : F5L912  
Power KW : 42.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1419992198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0681343009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1680750014  
Outside diameter : 6.0

B07

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 1.95  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 0.50  
Tolerance mm : ± 1.50  
Firing order : 1- 3- 5- 4- 2  
Phasing : 0-72-144-216-288  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 900  
Rack travel in mm : 11.40  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance cm <sup>3</sup> /1000S.	:	4.0
2nd speed rpm	:	325
Rack travel in mm	:	8.70
Del. quantity cm <sup>3</sup> /1000 strokes	:	12.0
Tolerance cm <sup>3</sup> /1000 strokes	: ±	1.5
Check tolerance cm <sup>3</sup> /1000S.	: ±	3.5
Spread Tolerance cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance cm <sup>3</sup> /1000S.	:	6.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800
Rack travel in mm	:	0.50
Tolerance mm	: ±	0.20
governor spring pre-tension click setting x	:	4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1130
Aneroid pressure hPa	:	-
Del. quantity cm <sup>3</sup> /1000 strokes	:	53.5
Tolerance cm <sup>3</sup> /1000 strokes	: ±	0.5
Check tolerance cm <sup>3</sup> /1000S.	: ±	2.0
Spread Tolerance cm <sup>3</sup> /1000 strokes	:	2.5
Check tolerance cm <sup>3</sup> /1000S.	:	4.0

RATED SPEED

control lever position degree	:	97.0
tolerance degree	: ±	4.0
rack travel mm	:	10.40
Rated speed rpm	:	945
Tolerance 1/min	: ±	5
rack travel mm	:	4.00
Rated speed rpm	:	980
Tolerance 1/min	: ±	15
rack travel mm	:	0.85
Tolerance mm	: ±	0.55
Rated speed rpm	:	1150
rack travel mm	:	4.00
Rated speed rpm	:	1010

LOW IDLE

control lever position degree	:	73.0
tolerance degree	: ±	4.0

Setting point w/out bumper spring

Rated speed rpm	:	325
rack travel mm	:	8.20

Testing:

Rated speed rpm	:	325
rack travel mm	:	8.70
Tolerance mm	: ±	0.10

rack travel mm	:	2.00
Rated speed rpm	:	450
Tolerance 1/min	: ±	30

Rated speed rpm	:	100
CRT mm min.	:	> 19.50

TORQUE CONTROL

Rated speed rpm	:	900
rack travel mm	:	11.40
Tolerance mm	: ±	0.05

Rated speed rpm	:	500
rack travel mm	:	11.45
Tolerance mm	: ±	0.10

---

BREAKAWAY

Rack travel in mm : 10.40  
Rated speed rpm : 945  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 115.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 7.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 10.0

---

LOW IDLE

Rated speed rpm : 325  
rack travel mm : 8.70  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113

Combination No. : 0401846939

Injection pump  
Pump designation : PE6P110A320RS3265  
EP type number : 0411816778

Governor  
Governor design. : RQV300...1050PA232  
: -5  
Governor no. : 0421813895

Cust. part No. : 11031123  
: -P03 V. 3/94

## Customer-spec. information

Customer : VME  
Motor : TD102KCE  
Power KW : 180.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 0681343009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

B10

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1150

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

RATED SPEED

control lever  
position degree : 50.0  
tolerance degree : + 4.0

control lever  
position degree : 117.0  
tolerance degree : + 4.0

rack travel mm : 11.45  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1300

---

LOW IDLE

control lever  
position degree : 86.0  
tolerance degree : + 4.0

control lever  
position degree : 20.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 100  
rack travel mm : 4.90  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 6.50

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 355

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 12.45  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.00  
Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : 340  
rack travel mm : 2.00  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 70  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : --  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.45  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.03.95  
Test oil : ISO 4113  
  
Combination No. : 0401846989  
  
Injection pump  
Pump designation : PE6P110A320RS3108X  
EP type number : 0411816730  
  
Governor  
Governor design. : RQV250...1100PA920  
                  : -8  
Governor no. : 0421814104  
  
Cust. part No. : 425662  
                  : -P02 RELEASED

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : THD101,102,TD102  
Power KW : 197.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413046

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 0681343009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.19  
Tolerance mm : +- 0.25

Rated speed rpm : 1176  
guide sleeve  
travel mm : 8.29  
Tolerance mm : +- 0.25

Rated speed rpm : 1090  
guide sleeve  
travel mm : 6.95  
Tolerance mm : +- 0.25

Rated speed rpm : 387  
guide sleeve  
travel mm : 2.96  
Tolerance mm : +- 0.25

Rated speed rpm : 437  
guide sleeve  
travel mm : 3.71  
Tolerance mm : +- 0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 4.67  
Tolerance mm : +- 0.25

Rated speed rpm : 1370  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1175

Rack travel in mm : 16.50  
Tolerance mm : +- 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

RATED SPEED

control lever  
position degree : 65.0  
tolerance degree : +- 4.0

control lever  
position degree : 119.0  
tolerance degree : +- 4.0

rack travel mm : 11.35  
Rated speed rpm : 1165  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : +- 4.0

control lever  
position degree : 12.0



tolerance degree : + 4.0

Testing:

Rated speed rpm : 250  
rack travel mm : 5.30  
Tolerance mm : + 0.10

Rated speed rpm : 150

CRT mm min. : > 6.30

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 330

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 12.35  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.50  
Tolerance mm : + 0.15

Rated speed rpm : 500

Pressure hPa : 740  
rack travel mm : 2.50  
Tolerance mm : + 0.15

Pressure hPa : 250  
rack travel mm : 0.25  
Tolerance mm : + 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 114.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

---

BREAKAWAY

Rack travel in mm : 11.35  
Rated speed rpm : 1165  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.50  
Tolerance mm : + 0.15

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.03.95  
Test oil : ISO 4113  
  
Combination No. : 0402046829  
  
Injection pump  
Pump designation : PES6P120A320RS3284  
EP type number : 0412026749  
  
Governor  
Governor design. : RQV275...1050PA995  
: -1  
Governor no. : 0421813941  
  
Cust. part No. : CCEP 5120A 66-177

Customer-spec. information  
Customer : RVI  
Motor : MIDR06.20.45 B/3  
Power KW : 195.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2417413071  
  
Inlet press. bar : 2.5  
  
Test nozzle holder  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Lube oil : 1409918004  
  
Test lines : 1680750089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
  
test only : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

BASIC SETTING

Rated speed rpm : 700  
  
Rack travel in mm : 10.70  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0

<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
<hr/>	
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0
<hr/>	
2nd speed rpm	: 275
<hr/>	
Rack travel in mm	: -5.20
Tolerance mm	: + 0.20
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 25.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 2.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 5.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1220
<hr/>	
Rack travel in mm	: 10.50
Tolerance mm	: + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure	
hPa	: 1000
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 157.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
Spreed	

Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

RATED SPEED

control lever	
position degree	: 300.0
tolerance degree	: + 4.0
<hr/>	
rack travel mm	: -1.00
Rated speed rpm	: 1125
Tolerance 1/min	: + 5
<hr/>	
rack travel mm	: -6.70
Rated speed rpm	: 1220
Tolerance 1/min	: + 15
<hr/>	
rack travel mm	: -10.20
Tolerance mm	: + 0.55
Rated speed rpm	: 1350

LOW IDLE

control lever	
position degree	: 247.0
tolerance degree	: + 4.0

Testing:

Rated speed rpm	: 275
rack travel mm	: -5.20
Tolerance mm	: + 0.10
<hr/>	
Rated speed rpm	: 200
CRT mm max.	: < -3.60

CONTINUOUS-ACTION CONTROL

Rated speed rpm	: 390
-----------------	-------

TORQUE CONTROL

Rated speed rpm	: 1050
Tolerance mm	: + 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -1.35  
Tolerance mm : + 0.15

Rated speed rpm : 500

Pressure hPa : 130  
rack travel mm : -1.00  
Tolerance mm : + 0.10

Pressure hPa : 240  
rack travel mm : -0.35  
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 100  
Check speed 1/min : > 80  
Rated speed rpm : < 210  
Check speed 1/min : < 230

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000  
Rated speed rpm : 1050  
Del. quantity cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure hPa : -  
Rated speed rpm : 500  
Del. quantity cm<sup>3</sup>/1000 strokes : 108.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance cm<sup>3</sup>/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1125

Tolerance 1/min : + 5

STARTING FUEL DELIVERY

Del. quantity cm<sup>3</sup>/1000 strokes : 175.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance cm<sup>3</sup>/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 275  
rack travel mm : -5.20  
Tolerance mm : + 0.20  
Del. quantity cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance cm<sup>3</sup>/1000S. : + 5.0  
Spreed Tolerance cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance cm<sup>3</sup>/1000S. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113

Combination No. : 0402640828

Injection pump  
Pump designation : PE12P120A520LS7826  
EP type number : 0412620817

Governor  
Governor design. : RQV350...1050PA870  
: -13  
Governor no. : 0421813934

Cust. part No. :

Customer-spec. information

Customer : MB-NFZ  
Motor : OM 444 LA  
Power KW : 620.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.00

Firing order : 12- 1- 5- 9- 8  
: - 3- 4- 11- 10  
: - 2- 6- 7

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 12

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.05

Tolerance mm	: ± 0.05
<hr/>	
Del. quantity cm <sup>3</sup> /1000 strokes	: 275.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spread Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 10.0
<hr/>	
2nd speed rpm	: 350
<hr/>	
Rack travel in mm	: 5.60
Tolerance mm	: ± 0.30
Del. quantity cm <sup>3</sup> /1000 strokes	: 19.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 6.0
Spread Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1150
<hr/>	
Rack travel in mm	: 16.50
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 1800
Del. quantity cm <sup>3</sup> /1000 strokes	: 275.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0

B20

Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spread Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 10.0

RATED SPEED

control lever position degree	: 118.0
tolerance degree	: ± 4.0
<hr/>	
rack travel mm	: 13.00
Rated speed rpm	: 1095
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1185
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1 0

LOW IDLE

control lever position degree	: 63.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 350
rack travel mm	: 5.60
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 250
<hr/>	
CRT mm min.	: > 7.30

CONTINUOUS-ACTION CONTROL

Rated speed rpm	: 475
-----------------	-------

TORQUE CONTROL

Rated speed rpm	: 1050
rack travel mm	: 14.05
Tolerance mm	: ± 0.05
<hr/>	
Rated speed rpm	: 750
rack travel mm	: 14.05

Tolerance mm : + 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Pressure hPa : 300  
rack travel mm : 1.45  
Tolerance mm : + 0.05

Pressure hPa : 900  
rack travel mm : 4.85  
Tolerance mm : + 0.15

---

START CUT-OUT

Rated speed rpm : > 200  
Check  
speed 1/min : > 180  
Rated speed rpm : < 310  
Check  
speed 1/min : < 330

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 340.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 14.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 5.60  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.03.95  
Test oil : ISO 4113

Combination No. : 0402640844

Injection pump  
Pump designation : PE12P120A520LS7879  
EP type number : 0412620841

Governor  
Governor design. : RQV350...1200PA1167  
Governor no. : 0421814107

Cust. part No. : 0250742402

Customer-spec. information  
Customer : MTU  
Motor : 12V183-03  
Power KW : 845.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 150  
Tolerance L/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

B22

Test lines : 1680750075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : .05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 12- 1- 5- 9- 8  
                  : - 3- 4- 11- 10  
                  : - 2- 6- 7

Phasing : 0-45-60-105-120  
          : -165-180-225-240  
          : -285-300-345

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 12

BASIC SETTING

Rated speed rpm : 1200



Rack travel in mm : 12.80  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 310.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 350

Rack travel in mm : 4.00  
Tolerance mm : +- 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.53  
Tolerance mm : +- 0.15

Rated speed rpm : 1281  
guide sleeve  
travel mm : 8.53  
Tolerance mm : +- 0.20

Rated speed rpm : 990  
guide sleeve  
travel mm : 5.68  
Tolerance mm : +- 0.25

Rated speed rpm : 420

guide sleeve  
travel mm : 2.86  
Tolerance mm : +- 0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 3.42  
Tolerance mm : +- 0.25

Rated speed rpm : 620  
guide sleeve  
travel mm : 3.89  
Tolerance mm : +- 0.25

Rated speed rpm : 1366  
guide sleeve  
travel mm : 10.00  
Tolerance mm : +- 0.25

Rated speed rpm : 1470  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1310

Rack travel in mm : 12.00  
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 2000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 310.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

RATED SPEED

control lever  
position degree : 122.0  
tolerance degree : +- 4.0

rack travel mm : 11.80  
Rated speed rpm : 1245  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1330  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1470

---

#### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 4.00  
Tolerance mm : + 0.10

Rated speed rpm : 250

CRT mm min. : > 6.30

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 450

---

#### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 12.80  
Tolerance mm : + 0.10

Rated speed rpm : 600  
rack travel mm : 9.50  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 2000  
rack travel mm : 12.70  
Tolerance mm : + 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 5.90  
Tolerance mm : + 0.15

Rated speed rpm : 600

Pressure hPa : 400  
rack travel mm : 7.70  
Tolerance mm : + 0.05

Pressure hPa : 250  
rack travel mm : 6.80  
Tolerance mm : + 0.10

Pressure hPa : 1600  
rack travel mm : 12.00  
Tolerance mm : + 0.05

Pressure hPa : 1200  
rack travel mm : 10.45  
Tolerance mm : + 0.10

---

#### START CUT-OUT

Rated speed rpm : > 240  
Check  
speed 1/min : > 220  
Rated speed rpm : < 270  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 800  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 253.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

#### BREAKAWAY

Rack travel in mm : 11.80  
Rated speed rpm : 1245  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 360.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.00  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.02.95  
Test oil : ISO 4113  
  
Combination No. : 0402646625  
  
Injection pump  
Pump designation : PE6P120A32ORS7300  
EP type number : 0412626886  
  
Governor  
Governor design. : RQV275...1000PA1077K  
Governor no. : 0421815358  
  
Cust. part No. : 1280165

Customer-spec. information  
Customer : DAF  
Motor : WS 242 M  
Power KW : 242.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1417413025  
  
Inlet press. bar : 1.5  
Tolerance bar : + 0.1  
  
Overflow quantity  
min. l/h : 140  
Tolerance l/h : + 10.0  
  
Test nozzle holder  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1680750089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 5.35  
Tolerance mm : + 0.05  
  
test only : + 0.10  
  
Rack travel in mm : 15.00  
Tolerance mm : + 0.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

BASIC SETTING

Rated speed rpm : 980  
  
Rack travel in mm : 15.05  
Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes	:	228.0
<hr/>		
Tolerance cm3/1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm3/1000S.	:	+ 4.0
<hr/>		
Spreed Tolerance cm3/1000 strokes	:	5.0
<hr/>		
Check tolerance cm3/1000S.	:	9.0
<hr/>		
2nd speed rpm	:	275
<hr/>		
Rack travel in mm	:	6.20
Tolerance mm	:	+ 0.10
Del. quantity cm3/1000 strokes	:	17.0
Tolerance cm3/1000 strokes	:	+ 3.0
Check tolerance cm3/1000S.	:	+ 6.0
Spreed Tolerance cm3/1000 strokes	:	8.0
Check tolerance cm3/1000S.	:	12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	275
guide sleeve travel mm	:	2.14
Tolerance mm	:	+ 0.20
<hr/>		
Rated speed rpm	:	1045
guide sleeve travel mm	:	9.83
Tolerance mm	:	+ 0.15
<hr/>		
Rated speed rpm	:	689
guide sleeve travel mm	:	6.43
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	284
guide sleeve travel mm	:	2.27
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	334

guide sleeve travel mm	:	3.08
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	400
guide sleeve travel mm	:	3.92
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	1310
guide sleeve travel mm	:	13.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	1140
<hr/>		
Rack travel in mm	:	14.00
Tolerance mm	:	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	980
Aneroid pressure hPa	:	-
Del. quantity cm3/1000 strokes	:	228.0
Tolerance cm3/1000 strokes	:	+ 1.0
Check tolerance cm3/1000S.	:	+ 4.0
Spreed Tolerance cm3/1000 strokes	:	5.0
Check tolerance cm3/1000S.	:	9.0

RATED SPEED

control lever position degree	:	119.0
tolerance degree	:	+ 4.0
<hr/>		
rack travel mm	:	14.00
Rated speed rpm	:	1037
Tolerance 1/min	:	+ 8
<hr/>		
rack travel mm	:	4.00
Rated speed rpm	:	1165
Tolerance 1/min	:	+ 15
<hr/>		
rack travel mm	:	0.70

Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 395  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 175

CRT mm min. :  $>$  8.50

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 15.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 850  
rack travel mm : 14.95  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 14.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 14.40  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 15.05  
Tolerance mm :  $\pm$  0.05

---

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 980  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 980

Pressure hPa : 480  
rack travel mm : 14.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 270  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 238.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity

cm<sup>3</sup>/1000 strokes : 157.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 14.00  
Rated speed rpm : 1037  
Tolerance 1/min :  $\pm$  8

---

#### LOW IDLE

Rated speed rpm : 275  
rack travel mm : 6.20  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113  
Combination No. : 0402646655  
Injection pump  
Pump designation : PE6P120A320RS7361  
EP type number : 0412626939  
Governor  
Governor design. : RQV275...1150PA1192K  
Governor no. : 0421815452

Cust. part No. : 1304201/0

Customer-spec. information  
Customer : DAF  
Motor : RS/GS 245 M  
Power KW : 245.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1417413000

Inlet press. bar : 1.5  
Tolerance bar : + 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : + 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Lube oil : 1409918004

C02

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 4.85  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : + 0.30

Check  
tolerance °NW : + 0.50

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

°NW after s.o.d. : 0.3

BASIC SETTING

Rated speed rpm : 1130



Rack travel in mm : 14.50  
Tolerance mm : +- 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 239.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 275

Rack travel in mm : 5.70  
Tolerance mm : +- 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.56  
Tolerance mm : +- 0.20

Rated speed rpm : 1223  
guide sleeve  
travel mm : 10.29  
Tolerance mm : +- 0.15

Rated speed rpm : 822  
guide sleeve  
travel mm : 6.85  
Tolerance mm : +- 0.25

Rated speed rpm : 300

guide sleeve  
travel mm : 2.13  
Tolerance mm : +- 0.25

Rated speed rpm : 350  
guide sleeve  
travel mm : 2.97  
Tolerance mm : +- 0.25

Rated speed rpm : 460  
guide sleeve  
travel mm : 3.90  
Tolerance mm : +- 0.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1275

Rack travel in mm : 13.50  
Tolerance mm : +- 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1130  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 239.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 120.0  
tolerance degree : +- 4.0

rack travel mm : 13.50  
Rated speed rpm : 1207  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1340  
Tolerance 1/min : +- 15  
  
rack travel mm : 0.70  
Tolerance mm : +- 0.70  
Rated speed rpm : 1450

---

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 275  
rack travel mm : 5.70  
Tolerance mm : +- 0.10  
  
Rated speed rpm : 175  
  
CRT mm min. : > 8.00

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 375

---

TORQUE CONTROL

Rated speed rpm : 1130  
rack travel mm : 14.50  
Tolerance mm : +- 0.05  
  
Rated speed rpm : 1025  
rack travel mm : 14.50  
Tolerance mm : +- 0.10  
  
Rated speed rpm : 850  
rack travel mm : 14.20  
Tolerance mm : +- 0.10  
  
Rated speed rpm : 650  
rack travel mm : 13.20  
Tolerance mm : +- 0.10  
  
Rated speed rpm : 500  
rack travel mm : 12.85  
Tolerance mm : +- 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

CO4

Rated speed rpm : 1130  
Pressure hPa : 1500  
rack travel mm : 14.50  
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1130  
rack travel mm : 9.20  
Tolerance mm : +- 0.20

Rated speed rpm : 1130

Pressure hPa : 740  
rack travel mm : 13.05  
Tolerance mm : +- 0.05

Pressure hPa : 320  
rack travel mm : 10.00  
Tolerance mm : +- 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 850  
Del. quantity  
cm3/1000 strokes : 256.0  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 5.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm3/1000 strokes : 154.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0

---

BREAKAWAY

Rack travel in mm : 13.50  
Rated speed rpm : 1207  
Tolerance 1/min : +- 5

---

LOW IDLE

Rated speed rpm : 275  
rack travel mm : 5.70  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113

Combination No. : 0402646769

Injection pump  
Pump designation : PE6P120A320LS7837  
: -10

EP type number : 0412626855

Governor  
Governor design. : RQV300...950PA1168  
: -5  
Governor no. : 0421814132

Cust. part No. : 0260740002

Customer-spec. information

Customer : MB-NFZ  
Motor : OM441 LA  
Power KW : 250.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 80  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

C06

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 13.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1-

Phasing : 0-60-120-180-240  
: -300-360  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

BASIC SETTING

Rated speed rpm : 550

---

Rack travel in mm : 15.10  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

2nd speed rpm : 300

Rack travel in mm : 6.20  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.26  
Tolerance mm : + 0.20

Rated speed rpm : 1009  
guide sleeve  
travel mm : 8.28  
Tolerance mm : + 0.15

Rated speed rpm : 575  
guide sleeve  
travel mm : 4.46  
Tolerance mm : + 0.25

Rated speed rpm : 625

guide sleeve  
travel mm : 5.03  
Tolerance mm : + 0.25

Rated speed rpm : 790  
guide sleeve  
travel mm : 6.16  
Tolerance mm : + 0.25

Rated speed rpm : 1103  
guide sleeve  
travel mm : 10.00  
Tolerance mm : + 0.25

Rated speed rpm : 1200  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1060

Rack travel in mm : 14.10  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 123.0  
tolerance degree : + 4.0

rack travel mm : 14.10  
Rated speed rpm : 995  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1090  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1200

---

#### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 3.50  
Tolerance mm : + 0.10

Rated speed rpm : 200  
CRT mm min. : > 5.70

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 325

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.10  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 15.10  
Tolerance mm : + 0.10

Rated speed rpm : 400  
rack travel mm : 13.85  
Tolerance mm : + 0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 1100  
rack travel mm : 15.10  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.15  
Tolerance mm : + 0.20

Rated speed rpm : 400

Pressure hPa : 150  
rack travel mm : 10.05  
Tolerance mm : + 0.20

Pressure hPa : 550  
rack travel mm : 13.85  
Tolerance mm : + 0.20

---

#### START CUT-OUT

Rated speed rpm : > 100

Check  
speed 1/min : > 80

Rated speed rpm : < 220

Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 550  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 14.10  
Rated speed rpm : 995  
Tolerance 1/min : +- 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113

Combination No. : 0402646770

Injection pump  
Pump designation : PE6P120A320LS7836  
: -10

EP type number : 0412626854

Governor  
Governor design. : RQV300...1050PA1168  
: -7  
Governor no. : 0421814143

Cust. part No. : 0250749902

Customer-spec. information

Customer : MB-NFZ  
Motor : OM401 LA  
Power KW : 200.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 75  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

c10

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 16.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1-

Phasing : 0-60-120-180-240  
: -300-360

Tolerance : ± 0.30

Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

BASIC SETTING

Rated speed rpm : 1050



---

Rack travel in mm : 13.00  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

2nd speed rpm : 300

Rack travel in mm : 5.80  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.29  
Tolerance mm : + 0.25

Rated speed rpm : 1107  
guide sleeve  
travel mm : 8.52  
Tolerance mm : + 0.25

Rated speed rpm : 1640  
guide sleeve  
travel mm : 25.13  
Tolerance mm : + 0.25

Rated speed rpm : 558

guide sleeve  
travel mm : 4.53  
Tolerance mm : + 0.25

Rated speed rpm : 608  
guide sleeve  
travel mm : 5.03  
Tolerance mm : + 0.25

Rated speed rpm : 820  
guide sleeve  
travel mm : 6.13  
Tolerance mm : + 0.25

Rated speed rpm : 1183  
guide sleeve  
travel mm : 10.00  
Tolerance mm : + 0.25

Rated speed rpm : 1280  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1145

Rack travel in mm : 12.00  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 120.0  
tolerance degree : + 4.0

rack travel mm : 12.00  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1170  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 3.50  
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 5.30

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.00  
Tolerance mm : + 0.05

Rated speed rpm : 550  
rack travel mm : 13.00  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 800  
rack travel mm : 13.00  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 10.55  
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 200  
rack travel mm : 11.40  
Tolerance mm : + 0.15

Pressure hPa : 350  
rack travel mm : 12.25  
Tolerance mm : + 0.15

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 350  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Aneroid pressure  
hPa : 800  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 189.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.80  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113

Combination No. : 0402646771

Injection pump  
Pump designation : PE6P120A320LS7836-2  
EP type number : 0412626944

Governor  
Governor design. : RQV300...1050PA1168  
: -8  
Governor no. : 0421814141

Cust. part No. : 0250749802

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM401 LA  
Power KW : 180.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 95  
Tolerance L/h : ± 10.0

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1-

Phasing : 0-60-120-180-240  
: -300-360

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.40  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 5.80  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.29  
Tolerance mm : + 0.20

Rated speed rpm : 1107  
guide sleeve  
travel mm : 8.51  
Tolerance mm : + 0.15

Rated speed rpm : 558  
guide sleeve  
travel mm : 4.53  
Tolerance mm : + 0.25

Rated speed rpm : 608

guide sleeve  
travel mm : 5.03  
Tolerance mm : + 0.25

Rated speed rpm : 820  
guide sleeve  
travel mm : 6.13  
Tolerance mm : + 0.25

Rated speed rpm : 1183  
guide sleeve  
travel mm : 10.00  
Tolerance mm : + 0.25

Rated speed rpm : 1280  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1150

Rack travel in mm : 11.40  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
position degree : 119.0  
tolerance degree : + 4.0

rack travel mm : 11.40  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1170  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 3.50  
Tolerance mm : + 0.10

Rated speed rpm : 200  
CRT mm min. : > 5.30

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.40  
Tolerance mm : + 0.05

Rated speed rpm : 550  
rack travel mm : 12.40  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 700  
rack travel mm : 12.40  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 11.05  
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 200  
rack travel mm : 11.45  
Tolerance mm : + 0.20

Pressure hPa : 300  
rack travel mm : 12.00  
Tolerance mm : + 0.20

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 200  
Rated speed rpm : 30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.5

Aneroid pressure  
hPa : 700  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 11.40  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.80  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113

Combination No. : 0402646970

Injection pump  
Pump designation : PE6P120A320RS7248  
: -10Y  
EP type number : 0412626902

Governor  
Governor design. : RQV275...1150PA986  
Governor no. : 0421813920

Cust. part No. : 1248046/4

Customer-spec. information

Customer : DAF  
Motor : RS 180 L  
Power KW : 180.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 130  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30

Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.75  
Tolerance mm : ± 0.05



---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 275

Rack travel in mm : 5.40  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.44  
Tolerance mm : ± 0.15

Rated speed rpm : 1206  
guide sleeve  
travel mm : 8.25  
Tolerance mm : ± 0.20

Rated speed rpm : 799  
guide sleeve  
travel mm : 5.21  
Tolerance mm : ± 0.25

Rated speed rpm : 315  
guide sleeve  
travel mm : 1.98  
Tolerance mm : ± 0.25

Rated speed rpm : 365  
guide sleeve  
travel mm : 2.52  
Tolerance mm : ± 0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.07  
Tolerance mm : ± 0.25

Rated speed rpm : 1500  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1340

Rack travel in mm : 9.70  
Tolerance mm : ± 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 120.0  
tolerance degree : ± 4.0

rack travel mm : 9.75  
Rated speed rpm : 1182  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1280  
Tolerance 1/min : ± 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1450

---

LOW IDLE

control lever  
position degree : 83.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 275  
rack travel mm : 4.70  
Tolerance mm : + 0.10

Rated speed rpm : 175  
CRT mm min. : > 7.40

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 340

---

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 10.75  
Tolerance mm : + 0.05

Rated speed rpm : 1150  
rack travel mm : 10.75  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 10.75  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 9.50  
Tolerance mm : + 0.10

Rated speed rpm : 600

Pressure hPa : 260

C20

rack travel mm : 10.35  
Tolerance mm : + 0.05

Pressure hPa : 190  
rack travel mm : 9.90  
Tolerance mm : + 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

BREAKAWAY

Rack travel in mm : 9.75  
Rated speed rpm : 1 1/2  
Tolerance 1/min : + 5

---

LOW IDLE

Rated speed rpm : 275  
rack travel mm : 5.40  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance

cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113  
Combination No. : 0402646971  
Injection pump  
Pump designation : PE6P120A320RS7218  
                  : -10Z  
EP type number : 0412626892  
Governor  
Governor design. : RQV275...1000PA939  
                  : -2  
Governor no. : 0421813986  
Cust. part No. : 1249337/5

Customer-spec. information  
Customer : DAF  
Motor : WS 242 L

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 1.5  
Overflow quantity  
min. L/h : 105  
Tolerance L/h : + 10.0  
Test nozzle holder  
assembly : 1688901105  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1680750089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 1.35  
Tolerance mm : + 0.05  
test only : + 0.10  
Rack travel in mm : 14.50  
Tolerance mm : + 0.50  
Firing order : 1- 5- 3- 6- 2-  
                  : 4  
Phasing : 0-60-120-180-240  
          : -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

BASIC SETTING

Rated speed rpm : 850  
Rack travel in mm : 13.95  
Tolerance mm : + 0.05

<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 210.0
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0
<hr/>	
2nd speed rpm	: 275
<hr/>	
Rack travel in mm	: 6.10
Tolerance mm	: ± 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 17.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 6.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 275
guide sleeve	
travel mm	: 1.34
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1058
guide sleeve	
travel mm	: 8.05
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 676
guide sleeve	
travel mm	: 4.49
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 301
guide sleeve	
travel mm	: 1.78
Tolerance mm	: ± 0.25

Rated speed rpm	: 351
guide sleeve	
travel mm	: 2.45
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 380
guide sleeve	
travel mm	: 2.66
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 1310
guide sleeve	
travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1130
<hr/>	
Rack travel in mm	: 13.90
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 850
Aneroid pressure	
hPa	: 1000
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 210.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

RATED SPEED

control lever	
position degree	: 119.0
tolerance degree	: ± 4.0
<hr/>	
rack travel mm	: 12.95
Rated speed rpm	: 1042
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1160
Tolerance 1/min	: ± 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1250

---

LOW IDLE

control lever  
position degree : 82.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 275  
rack travel mm : 5.00  
Tolerance mm : + 0.10

Rated speed rpm : 175  
CRT mm min. : > 7.50

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 325

---

TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 13.95  
Tolerance mm : + 0.05

Rated speed rpm : 1000  
rack travel mm : 13.95  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 13.95  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 11.80  
Tolerance mm : + 0.10

Rated speed rpm : 600

Pressure hPa : 420

rack travel mm : 13.35  
Tolerance mm : + 0.05

Pressure hPa : 300  
rack travel mm : 12.55  
Tolerance mm : + 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

---

BREAKAWAY

Rack travel in mm : 12.95  
Rated speed rpm : 1 1/2  
Tolerance 1/min : + 5

---

LOW IDLE

Rated speed rpm : 275  
rack travel mm : 6.10  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113  
  
Combination No. : 0402646973  
  
Injection pump  
Pump designation : PE6P120A32ORS7218  
                  : -10Z  
EP type number : 0412626892  
  
Governor  
Governor design. : RQ275/1000PA936-2  
Governor no. : 0421801633  
  
Cust. part No. : 1249172/5

---

Customer-spec. information  
Customer : DAF  
Motor : WS 242 L  
Power KW : 242.0

---

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
  
Overflow valve : 1417413025  
  
Inlet press. bar : 1.5  
Tolerance bar : +- 0.1  
  
Overflow quantity  
min. L/h : 110  
Tolerance L/h : +- 10.0  
  
Test nozzle holde  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1680750089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0  
  
Prestroke mm : 5.35  
Tolerance mm : +- 0.05  
  
test only : +- 0.10  
  
Rack travel in mm : 14.50  
Tolerance mm : +- 0.50  
  
Firing order : 1- 5- 3- 6- 2-  
                  : 4  
  
Phasing : 0-60-120-180-240  
          : -300  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.75

---

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

---

BASIC SETTING

Rated speed rpm : 850  
  
Rack travel in mm : 13.95

---

Tolerance mm :  $\pm$  0.05  


---

 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 210.0  


---

 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  


---

 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0  


---

 2nd speed rpm : 275  


---

 Rack travel in mm : 6.10  
 Tolerance mm :  $\pm$  0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 17.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
 guide sleeve  
 travel mm : 1.64  
 Tolerance mm :  $\pm$  0.10  


---

 Rated speed rpm : 1047  
 guide sleeve  
 travel mm : 6.43  
 Tolerance mm :  $\pm$  0.10  


---

 Rated speed rpm : 1000  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm :  $\pm$  0.10  


---

 Rated speed rpm : 356  
 guide sleeve  
 travel mm : 4.13  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 450  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm :  $\pm$  0.10  


---

 Rated speed rpm : 1220  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm :  $\pm$  0.50

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 550  


---

 Rack travel in mm : 16.00  
 Tolerance mm :  $\pm$  0.60

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
 Aneroid pressure  
 hPa : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 210.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
 position degree : 109.0  
 tolerance degree :  $\pm$  4.0  


---

 rack travel mm : 12.95  
 Rated speed rpm : 1042  
 Tolerance 1/min :  $\pm$  8  


---

 rack travel mm : 4.00  
 Rated speed rpm : 1135  
 Tolerance 1/min :  $\pm$  15  


---

 rack travel mm : 0.70  
 Tolerance mm :  $\pm$  0.70  
 Rated speed rpm : 1250

---

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 275  
rack travel mm : 5.00  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 350  
Tolerance 1/min : +- 20

Rated speed rpm : 175

CRT mm min. : > 6.50

---

TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 13.95  
Tolerance mm : +- 0.05

Rated speed rpm : 1000  
rack travel mm : 13.95  
Tolerance mm : +- 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 13.95  
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 11.80  
Tolerance mm : +- 0.10

Rated speed rpm : 600

Pressure hPa : 420  
rack travel mm : 13.35  
Tolerance mm : +- 0.05

Pressure hPa : 300

C26

rack travel mm : 12.55  
Tolerance mm : +- 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

BREAKAWAY

Rack travel in mm : 12.95  
Rated speed rpm : 1042  
Tolerance 1/min : +- 8

---

LOW IDLE

Rated speed rpm : 275  
rack travel mm : 6.10  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113  
Combination No. : 0402646986  
Injection pump  
Pump designation : PE6P120A320RS7248  
: -10Y  
EP type number : 0412626902  
Governor  
Governor design. : RQ275/1150PA987  
Governor no. : 0421801578  
Cust. part No. : 1248043/4

Customer-spec. information  
Customer : DAF  
Motor : RS 180 L  
Power KW : 180.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1688901105  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1680750089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 5.25  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 14.50  
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.75  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 275

Rack travel in mm : 5.40  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 550

Rack travel in mm : 15.80  
Tolerance mm : + 0.60

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 100.0  
tolerance degree : + 4.0

rack travel mm : 9.75  
Rated speed rpm : 1207  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1290  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1450

---

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 275  
rack travel mm : 4.70  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min : + 20

Rated speed rpm : 175

CRT mm min. : > 7.00

---

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 10.75  
Tolerance mm : + 0.05

Rated speed rpm : 1150  
rack travel mm : 10.75  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 10.75  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 9.50  
Tolerance mm : ± 0.10

Rated speed rpm : 600

Pressure hPa : 260  
rack travel mm : 10.35  
Tolerance mm : ± 0.05

Pressure hPa : 190  
rack travel mm : 9.90  
Tolerance mm : ± 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 9.75  
Rated speed rpm : 1207  
Tolerance 1/min : ± 8

---

LOW IDLE

Rated speed rpm : 275

D01

rack travel mm : 5.40  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113  
Combination No. : 0402648799  
Injection pump  
Pump designation : PE8P120A320LS7847-2  
EP type number : 0412628885  
Governor  
Governor design. : RQ300/1050PA1030-28  
Governor no. : 0421801778

Cust. part No. : 0260744102

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 280.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8-7-2-6-3  
                  : -5-4-1

Phasing : 0-45-90-135-180  
          : -225-270-315

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80

Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 239.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 5.70  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.94  
Tolerance mm : + 0.10

Rated speed rpm : 1104  
guide sleeve  
travel mm : 6.84  
Tolerance mm : + 0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.50  
Tolerance mm : + 0.10

Rated speed rpm : 732  
guide sleeve  
travel mm : 6.13  
Tolerance mm : + 0.10

Rated speed rpm : 426  
guide sleeve  
travel mm : 4.29  
Tolerance mm : + 0.10

Rated speed rpm : 540  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1270  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

Rated speed rpm : 828  
guide sleeve  
travel mm : 6.38  
Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 7.00  
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 239.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
position degree : 99.0  
tolerance degree : + 4.0

rack travel mm : 13.30  
Rated speed rpm : 1098  
Tolerance 1/min : + 8

rack travel mm : 4.00

Rated speed rpm : 1190  
Tolerance 1/min : + 15  
  
rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 415  
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 7.20

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 14.80  
Tolerance mm : + 0.05

Rated speed rpm : 1050  
rack travel mm : 14.30  
Tolerance mm : + 0.10

Rated speed rpm : 850  
rack travel mm : 14.50  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 1200  
rack travel mm : 14.80  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400

rack travel mm : 11.35  
Tolerance mm : + 0.20

Rated speed rpm : 400

Pressure hPa : 300  
rack travel mm : 12.55  
Tolerance mm : + 0.20

Pressure hPa : 450  
rack travel mm : 13.85  
Tolerance mm : + 0.15

---

#### START CUT-OUT

Rated speed rpm : > 100

Check  
speed 1/min : > 80

Rated speed rpm : > 220

Check  
speed 1/min : > 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 450  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 217.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 13.30  
Rated speed rpm : 1098  
Tolerance 1/min : ± 8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.70  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.03.95  
Test oil : ISO 4113

Combination No. : 0402648943

Injection pump  
Pump designation : PE8P120A720LS7189  
: -10

EP type number : 0412628893

Governor  
Governor design. : RQV350...1050PA795  
: -14  
Governor no. : 0421814020

Cust. part No. : 1340518

Customer-spec. information  
Customer : SCANIA  
Motor : DSC14

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

D06

x inside diameter : 2.0  
x length mm : 600

REMARKS

Start-of-delivery setting with ROBO diaphragm.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4  
: - 5- 6- 8

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.25  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 216.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 350

Rack travel in mm : 4.60  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1150

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 216.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

D07

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

RATED SPEED

control lever  
position degree : 46.0

control lever  
position degree : 106.0  
tolerance degree : + 4.0

rack travel mm : 11.20  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 2.50  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

control lever  
position degree : 15.0

Testing:

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm : + 0.10

Rated speed rpm : 250

CRT mm min. : > 7.50

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 325

---

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.25

Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 1050  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 525  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 320  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.20

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 199.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 11.20  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.03.95  
Test oil : ISO 4113

Combination No. : 0402648947B

Injection pump  
Pump designation : PE8P120A320LS7859  
EP type number : 0412628869

Governor  
Governor design. : RQ300/950PA1032-5  
Governor no. : 0421801668

Cust. part No. : 0230749602

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 320.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : +- 0.1

Tolerance l/h : +- 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 5.25  
Tolerance mm : +- 0.05

test only : +- 0.10

Rack travel in mm : 20.50  
Tolerance mm : +- 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315

Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.00  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 5.20  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.72  
Tolerance mm : + 0.10

Rated speed rpm : 1005  
guide sleeve  
travel mm : 6.34  
Tolerance mm : + 0.10

Rated speed rpm : 950  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 476

guide sleeve  
travel mm : 4.76  
Tolerance mm : + 0.10

Rated speed rpm : 580  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1190  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
position degree : 97.0  
tolerance degree : + 4.0

rack travel mm : 14.00  
Rated speed rpm : 998  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1090  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1200

---

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 435  
Tolerance 1/min : ± 20

Rated speed rpm : 200

CRT mm min. : > 8.00

---

TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.00  
Tolerance mm : ± 0.05

Rated speed rpm : 950  
rack travel mm : 15.00  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 15.00  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.10  
Tolerance mm : ± 0.15

Rated speed rpm : 400

Pressure hPa : 250  
rack travel mm : 11.00  
Tolerance mm : ± 0.10

Pressure hPa : 550

rack travel mm : 13.60  
Tolerance mm : ± 0.15

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : > 220  
Check  
speed 1/min : > 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 550  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 241.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

BREAKAWAY

Rack travel in mm : 14.00  
Rated speed rpm : 998  
Tolerance 1/min :  $\pm$  8

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.03.95  
Test oil : ISO 4113

Combination No. : 0402648980

Injection pump  
Pump designation : PE8P120A320LS7839  
: -10  
EP type number : 0412628855

Governor  
Governor design. : RQV300...950PA797  
: -39  
Governor no. : 0421814115

Cust. part No. : 0250749102

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

---

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

D13

Test lines : 1680750075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 14.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

---

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

---

BASIC SETTING

Rated speed rpm : 550

---

Rack travel in mm : 15.20  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 5.20  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.29  
Tolerance mm : + 0.20

Rated speed rpm : 1010  
guide sleeve  
travel mm : 8.56  
Tolerance mm : + 0.15

Rated speed rpm : 567  
guide sleeve  
travel mm : 4.66  
Tolerance mm : + 0.25

Rated speed rpm : 617

guide sleeve  
travel mm : 5.23  
Tolerance mm : + 0.25

Rated speed rpm : 780  
guide sleeve  
travel mm : 6.31  
Tolerance mm : + 0.25

Rated speed rpm : 1092  
guide sleeve  
travel mm : 10.00  
Tolerance mm : + 0.25

Rated speed rpm : 1190  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1030

Rack travel in mm : 14.20  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
position degree : 121.0  
tolerance degree : + 4.0

rack travel mm : 14.20  
Rated speed rpm : 995  
Tolerance 1/min : + 5



rack travel mm : 4.00  
Rated speed rpm : 1095  
Tolerance 1/min : +- 15  
  
rack travel mm : 0.75  
Tolerance mm : +- 0.75  
Rated speed rpm : 1250

---

LOW IDLE

control lever  
position degree : 82.0  
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm : +- 0.10  
  
Rated speed rpm : 200  
  
CRT mm min. : > 8.50

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 360

---

TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.20  
Tolerance mm : +- 0.05

Rated speed rpm : 750  
rack travel mm : 15.20  
Tolerance mm : +- 0.05

Rated speed rpm : 950  
rack travel mm : 15.20  
Tolerance mm : +- 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 400  
Pressure hPa : 1200  
rack travel mm : 15.20  
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 8.25  
Tolerance mm : +- 0.15

Rated speed rpm : 400

Pressure hPa : 300  
rack travel mm : 9.95  
Tolerance mm : +- 0.20

Pressure hPa : 500  
rack travel mm : 11.65  
Tolerance mm : +- 0.20

---

START CUT-OUT

Rated speed rpm : > 190  
Check  
speed 1/min : > 170  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 500  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

BREAKAWAY

Rack travel in mm : 14.20  
Rated speed rpm : 995  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 255.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.03.95  
Test oil : ISO 4113

Combination No. : 0402648981

Injection pump  
Pump designation : PE8P120A320LS7839  
: -10

EP type number : 0412628855

Governor  
Governor design. : RQ300/950PA971-10  
Governor no. : 0421801754

Cust. part No. : 0250749002

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

---

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance L/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 14.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

---

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

---

BASIC SETTING

Rated speed rpm : 550

---

Rack travel in mm : 15.20

Tolerance mm :  $\pm$  0.05  


---

 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 289.0  


---

 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  


---

 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0  


---

 2nd speed rpm : 300  


---

 Rack travel in mm : 5.20  
 Tolerance mm :  $\pm$  0.30  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 19.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 2.25  
 Tolerance mm :  $\pm$  0.10  


---

 Rated speed rpm : 1005  
 guide sleeve  
 travel mm : 6.33  
 Tolerance mm :  $\pm$  0.10  


---

 Rated speed rpm : 950  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm :  $\pm$  0.10  


---

 Rated speed rpm : 450  
 guide sleeve  
 travel mm : 4.72  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 580  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm :  $\pm$  0.10  


---

 Rated speed rpm : 1190  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm :  $\pm$  0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600  
 Rack travel in mm : 20.00  
 Tolerance mm :  $\pm$  0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
 Aneroid pressure  
 hPa : 1200  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 19.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
 position degree : 102.0  
 tolerance degree :  $\pm$  4.0  


---

 rack travel mm : 14.20  
 Rated speed rpm : 998  
 Tolerance 1/min :  $\pm$  5  


---

 rack travel mm : 4.00  
 Rated speed rpm : 1105  
 Tolerance 1/min :  $\pm$  15  


---

 rack travel mm : 0.75  
 Tolerance mm :  $\pm$  0.75  
 Rated speed rpm : 1250

LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 425  
Tolerance 1/min : ± 20

Rated speed rpm : 200

CRT mm min. : > 7.20

TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.20  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 15.20  
Tolerance mm : ± 0.05

Rated speed rpm : 950  
rack travel mm : 15.20  
Tolerance mm : ± 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 400  
Pressure hPa : 1200  
rack travel mm : 15.20  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 8.25  
Tolerance mm : ± 0.15

Rated speed rpm : 400

Pressure hPa : 300  
rack travel mm : 9.95  
Tolerance mm : ± 0.20

Pressure hPa : 500

rack travel mm : 11.65  
Tolerance mm : ± 0.20

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 500  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

BREAKAWAY

Rack travel in mm : 14.20  
Rated speed rpm : 998  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 255.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113  
  
Combination No. : 0402648982  
  
Injection pump  
Pump designation : PE8P120A320LS7884  
EP type number : 0412628900  
  
Governor  
Governor design. : RQV350...1200PA1197  
Governor no. : 0421814116

Cust. part No. : 0250744102

---

Customer-spec. information  
Customer : MTU  
Motor : 8V-183-03  
Power KW : 564.0

---

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance L/h : ± 10.0

Test nozzle holde assembly : 1688901105

Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

---

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

---

BASIC SETTING

Rated speed rpm : 600

---

Rack travel in mm : 9.50  
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes :	260.5
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
<hr/>	
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	8.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0
<hr/>	
2nd speed rpm	: 350
<hr/>	
Rack travel in mm :	3.80
Tolerance mm :	+ 0.30
Del. quantity	
cm <sup>3</sup> /1000 strokes :	15.0
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 6.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve	
travel mm	: 1.53
Tolerance mm	: + 0.20
<hr/>	
Rated speed rpm	: 1255
guide sleeve	
travel mm	: 8.31
Tolerance mm	: + 0.15
<hr/>	
Rated speed rpm	: 1000
guide sleeve	
travel mm	: 5.83
Tolerance mm	: + 0.25
<hr/>	
Rated speed rpm	: 407
guide sleeve	
travel mm	: 2.57
Tolerance mm	: + 0.25

Rated speed rpm	: 457
guide sleeve	
travel mm	: 3.13
Tolerance mm	: + 0.25

Rated speed rpm	: 610
guide sleeve	
travel mm	: 3.65
Tolerance mm	: + 0.25

Rated speed rpm	: 1360
guide sleeve	
travel mm	: 10.00
Tolerance mm	: + 0.25

Rated speed rpm	: 1470
guide sleeve	
travel mm	: 11.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1 70

Rack travel in mm	: 13.00
Tolerance mm	: + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure	
hPa	: 650
Del. quantity	
cm <sup>3</sup> /1000 strokes :	260.5
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

RATED SPEED

control lever	
position degree	: 120.0
tolerance degree	: + 4.0
<hr/>	
rack travel mm	: 12.70
Rated speed rpm	: 1245
Tolerance 1/min	: + 5



rack travel mm : 4.00  
Rated speed rpm : 1345  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1450

---

LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 3.80  
Tolerance mm : + 0.10

Rated speed rpm : 250  
CRT mm min. : > 5.30

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 450

---

TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 9.50  
Tolerance mm : + 0.05

Rated speed rpm : 1200  
rack travel mm : 13.75  
Tolerance mm : + 0.10

Rated speed rpm : 750  
rack travel mm : 13.75  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 6.00  
Tolerance mm : + 0.15

Pressure hPa : 500  
rack travel mm : 9.00  
Tolerance mm : + 0.05

Pressure hPa : 250  
rack travel mm : 7.30  
Tolerance mm : + 0.10

Pressure hPa : 1600  
rack travel mm : 13.00  
Tolerance mm : + 0.05

Pressure hPa : 1000  
rack travel mm : 10.55  
Tolerance mm : + 0.10

---

START CUT-OUT

Rated speed rpm : > 260  
Check  
speed 1/min : > 240  
Rated speed rpm : < 270  
Check  
speed 1/min : < 290

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 334.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 389.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 12.70  
Rated speed rpm : 1245  
Tolerance 1/min : +- 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 415.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 24.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 3.80  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.03.95  
Test oil : ISO 4113  
Combination No. : 0402648983  
Injection pump  
Pump designation : PE8P120A320LS7839  
                  : -10  
EP type number : 0412628855  
Governor  
Governor design. : RQ300/950PA993-9  
Governor no. : 0421801755  
Cust. part No. : 0250749202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1417413047  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Tolerance l/h : ± 10.0  
Test nozzle holder  
assembly : 1688901105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Lube oil : 1409918004

Test lines : 1680750075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 14.50  
Tolerance mm : ± 0.50  
Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

BASIC SETTING

Rated speed rpm : 550  
Rack travel in mm : 15.20

Tolerance mm	: ± 0.05
<hr/>	
Del. quantity cm <sup>3</sup> /1000 strokes	: 289.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Speed Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 9.0
<hr/>	
2nd speed rpm	: 300
<hr/>	
Rack travel in mm	: 5.20
Tolerance mm	: ± 0.30
Del. quantity cm <sup>3</sup> /1000 strokes	: 19.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 6.0
Speed Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve travel mm	: 2.14
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 1005
guide sleeve travel mm	: 6.34
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 950
guide sleeve travel mm	: 6.00
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 399
guide sleeve travel mm	: 4.46
Tolerance mm	: ± 0.10

Rated speed rpm	: 500
guide sleeve travel mm	: 6.00
Tolerance mm	: ± 0.10
<hr/>	
Rated speed rpm	: 1170
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 600
Rack travel in mm	: 20.00
Tolerance mm	: ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 550
Aneroid pressure hPa	: 1200
Del. quantity cm <sup>3</sup> /1000 strokes	: 19.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Speed Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

RATED SPEED

control lever position degree	: 98.0
tolerance degree	: ± 4.0
<hr/>	
rack travel mm	: 14.20
Rated speed rpm	: 998
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 1085
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: 0.75
Tolerance mm	: ± 0.75
Rated speed rpm	: 1250

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : +- 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 3.50  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min : +- 20

Rated speed rpm : 200

CRT mm min. : > 5.70

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.20  
Tolerance mm : +- 0.05

Rated speed rpm : 750  
rack travel mm : 15.20  
Tolerance mm : +- 0.05

Rated speed rpm : 950  
rack travel mm : 15.20  
Tolerance mm : +- 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1200  
rack travel mm : 15.20  
Tolerance mm : +- 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 8.25  
Tolerance mm : +- 0.15

Rated speed rpm : 400

Pressure hPa : 300  
rack travel mm : 9.95  
Tolerance mm : +- 0.20

Pressure hPa : 500

rack travel mm : 11.65  
Tolerance mm : +- 0.20

#### START CUT-OUT

Rated speed rpm : > 100  
Check

speed 1/min : > 80

Rated speed rpm : < 220

Check

speed 1/min : < 240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 500

Rated speed rpm : 400

Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Aneroid pressure  
hPa : 1200

Rated speed rpm : 750

Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Aneroid pressure  
hPa : 1200

Rated speed rpm : 950

Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

BREAKAWAY

Rack travel in mm : 14.20  
Rated speed rpm : 998  
Tolerance 1/min : +- 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 255.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.03.95  
Test oil : ISO 4113  
  
Combination No. : 0402648984  
  
Injection pump  
Pump designation : PE8P120A320LS7839  
                  : -10  
EP type number : 0412628855  
  
Governor  
Governor design. : RQ300/1050PA972-12  
Governor no. : 0421801759  
  
Cust. part No. : 0250749302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1417413047  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Tolerance l/h : ± 10.0  
  
Test nozzle holde  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Lube oil : 1409918004

E01

Test lines : 1680750075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
  
test only : ± 0.10  
  
Rack travel in mm : 14.50  
Tolerance mm : ± 0.50  
  
Firing order : 8- 7- 2- 6- 3  
              : - 5- 4- 1  
  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance \*NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.20

Tolerance mm : + 0.05

---

Del. quantity  
cm3/1000 strokes : 289.0

---

Tolerance  
cm3/1000 strokes : + 1.0

---

Check tolerance  
cm3/1000S. : + 4.0

---

Spreed  
Tolerance  
cm3/1000 strokes : 6.0

---

Check tolerance  
cm3/1000S. : 9.0

---

2nd speed rpm : 300

Rack travel in mm : 5.20  
Tolerance mm : + 0.30

Del. quantity  
cm3/1000 strokes : 19.0  
Tolerance  
cm3/1000 strokes : + 3.0  
Check tolerance  
cm3/1000S. : + 6.0

Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.94  
Tolerance mm : + 0.10

Rated speed rpm : 1104  
guide sleeve  
travel mm : 6.34  
Tolerance mm : + 0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 414  
guide sleeve  
travel mm : 4.51  
Tolerance mm : + 0.10

Rated speed rpm : 570  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1280  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm3/1000 strokes : 19.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0

Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 9.0

RATED SPEED

control lever  
position degree : 98.0  
tolerance degree : + 4.0

rack travel mm : 14.20  
Rated speed rpm : 1098  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1350

LOW IDLE



control lever  
position degree : 73.0  
tolerance degree : +- 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 405  
Tolerance 1/min : +- 20

Rated speed rpm : 200

CRT mm min. : > 8.20

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.20  
Tolerance mm : +- 0.05

Rated speed rpm : 750  
rack travel mm : 15.20  
Tolerance mm : +- 0.05

Rated speed rpm : 1050  
rack travel mm : 15.20  
Tolerance mm : +- 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1200  
rack travel mm : 15.20  
Tolerance mm : +- 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 8.25  
Tolerance mm : +- 0.15

Rated speed rpm : 400

Pressure hPa : 300  
rack travel mm : 9.95  
Tolerance mm : +- 0.20

Pressure hPa : 500

rack travel mm : 11.65  
Tolerance mm : +- 0.20

#### START CUT-OUT

Rated speed rpm : > 190  
Check  
speed 1/min : > 170  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 500  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 269.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

BREAKAWAY

Rack travel in mm : 14.20  
Rated speed rpm : 1098  
Tolerance 1/min : +- 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 255.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.03.95  
Test oil : ISO 4113  
  
Combination No. : 0402648985  
  
Injection pump  
Pump designation : PE8P120A320LS7839  
                  : -10  
EP type number : 0412628855  
  
Governor  
Governor design. : RQ300/1050PA993-10  
Governor no. : 0421801760  
  
Cust. part No. : 0250749502

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

---

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
  
Overflow valve : 1417413047  
  
Inlet press. bar : 1.5  
Tolerance bar : +- 0.1  
  
Tolerance l/h : +- 10.0  
  
Test nozzle holde  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5  
  
Lube oil : 1409918004

Test lines : 1680750075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0  
  
Prestroke mm : 5.05  
Tolerance mm : +- 0.05  
  
test only : +- 0.10  
  
Rack travel in mm : 14.50  
Tolerance mm : +- 0.50  
  
Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1  
  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.75

---

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

---

BASIC SETTING

Rated speed rpm : 550  
  
Rack travel in mm : 15.20

Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

2nd speed rpm : 300

---

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1104  
guide sleeve  
travel mm : 6.34  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 271  
guide sleeve  
travel mm : 1.33  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 510  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1280  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
position degree : 98.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 14.20  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1350

LOW IDLE

control lever  
position degree : 69.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 3.50  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 350  
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 5.50

TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.20  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 15.20  
Tolerance mm : + 0.10

Rated speed rpm : 1050  
rack travel mm : 15.20  
Tolerance mm : + 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 400  
Pressure hPa : 1200  
rack travel mm : 15.20  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 8.25  
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 300  
rack travel mm : 9.95  
Tolerance mm : + 0.20

Pressure hPa : 500

E07

rack travel mm : 11.65  
Tolerance mm : + 0.20

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 500  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 269.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

BREAKAWAY

Rack travel in mm : 14.20  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 255.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113  
  
Combination No. : 0402648987  
  
Injection pump  
Pump designation : PE8P120A320LS7838  
: -10  
EP type number : 0412628854  
  
Governor  
Governor design. : RQV300...950PA1199  
: -2  
Governor no. : 0421814144  
  
Cust. part No. : 0250746202

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 320.0

---

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1417413047  
  
Inlet press. bar : 1.5  
Tolerance bar : + 0.1  
  
Tolerance l/h : + 10.0  
  
Test nozzle holde  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
  
Lube oil : 1409918004

E09

Test lines : 1680750075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
  
Prestroke mm : 5.25  
Tolerance mm : + 0.05  
  
test only : + 0.10  
  
Rack travel in mm : 20.50  
Tolerance mm : + 0.50  
  
Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1  
  
Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

---

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

---

BASIC SETTING

Rated speed rpm : 550

---

Rack travel in mm : 15.00  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.10  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.29  
Tolerance mm : + 0.20

Rated speed rpm : 1012  
guide sleeve  
travel mm : 8.60  
Tolerance mm : + 0.15

Rated speed rpm : 567  
guide sleeve  
travel mm : 4.66  
Tolerance mm : + 0.25

Rated speed rpm : 617

guide sleeve  
travel mm : 5.23  
Tolerance mm : + 0.25

Rated speed rpm : 780  
guide sleeve  
travel mm : 6.31  
Tolerance mm : + 0.25

Rated speed rpm : 1092  
guide sleeve  
travel mm : 10.00  
Tolerance mm : + 0.25

Rated speed rpm : 1190  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1045

Rack travel in mm : 14.00  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
position degree : 122.0  
tolerance degree : + 4.0

rack travel mm : 14.00  
Rated speed rpm : 995  
Tolerance 1/min : + 5



rack travel mm : 4.00  
Rated speed rpm : 1105  
Tolerance 1/min : ± 15

rack travel mm : 0.75  
Tolerance mm : ± 0.75  
Rated speed rpm : 1200

---

#### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 4.50  
Tolerance mm : ± 0.10

Rated speed rpm : 200

CRT mm min. : > 7.00

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 325

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.00  
Tolerance mm : ± 0.05

Rated speed rpm : 950  
rack travel mm : 15.00  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 15.00  
Tolerance mm : ± 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.10  
Tolerance mm : ± 0.15

Rated speed rpm : 400

Pressure hPa : 250  
rack travel mm : 10.95  
Tolerance mm : ± 0.15

Pressure hPa : 550  
rack travel mm : 13.85  
Tolerance mm : ± 0.15

---

#### START CUT-OUT

Rated speed rpm : > 190

Check  
speed 1/min : > 170  
Rated speed rpm : < 220

Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 550  
Rated speed rpm : 70  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.5

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 4.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 14.00  
Rated speed rpm : 995  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.10  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113

Combination No. : 0402648992

Injection pump  
Pump designation : PE8P120A320LS7847-2  
EP type number : 0412628885

Governor  
Governor design. : RQV300...1050PA1033  
: -21  
Governor no. : 0421814145

Cust. part No. : 0250747502

Customer-spec. information

Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 280.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 170  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm	:	14.80
Tolerance mm	:	+ 0.05
<hr/>		
Del. quantity cm <sup>3</sup> /1000 strokes	:	239.0
<hr/>		
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.0
<hr/>		
Spread Tolerance cm <sup>3</sup> /1000 strokes	:	6.0
<hr/>		
Check tolerance cm <sup>3</sup> /1000S.	:	9.0
<hr/>		
2nd speed rpm	:	300
<hr/>		
Rack travel in mm	:	5.70
Tolerance mm	:	+ 0.30
Del. quantity cm <sup>3</sup> /1000 strokes	:	13.0
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 3.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 6.0
<hr/>		
Spread Tolerance cm <sup>3</sup> /1000 strokes	:	8.0
Check tolerance cm <sup>3</sup> /1000S.	:	10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	300
guide sleeve travel mm	:	1.29
Tolerance mm	:	+ 0.20
<hr/>		
Rated speed rpm	:	1110
guide sleeve travel mm	:	8.58
Tolerance mm	:	+ 0.15
<hr/>		
Rated speed rpm	:	558
guide sleeve travel mm	:	4.53
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	608

guide sleeve travel mm	:	5.03
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	820
guide sleeve travel mm	:	6.13
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	1183
guide sleeve travel mm	:	10.00
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	1280
guide sleeve travel mm	:	11.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	1140
<hr/>		
Rack travel in mm	:	13.30
Tolerance mm	:	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	550
Aneroid pressure hPa	:	1200
Del. quantity cm <sup>3</sup> /1000 strokes	:	239.0
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.0
<hr/>		
Spread Tolerance cm <sup>3</sup> /1000 strokes	:	6.0
Check tolerance cm <sup>3</sup> /1000S.	:	9.0

RATED SPEED

control lever position degree	:	121.0
tolerance degree	:	+ 4.0
<hr/>		
rack travel mm	:	13.30
Rated speed rpm	:	1095
Tolerance 1/min	:	+ 5

rack travel mm : 4.00  
Rated speed rpm : 1185  
Tolerance 1/min : + 15  
  
rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 66.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm : + 0.10  
  
Rated speed rpm : 200  
  
CRT mm min. : > 7.30

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 375

---

TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 14.80  
Tolerance mm : + 0.05  
  
Rated speed rpm : 1050  
rack travel mm : 14.30  
Tolerance mm : + 0.10  
  
Rated speed rpm : 850  
rack travel mm : 14.50  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 400  
Pressure hPa : 1200  
rack travel mm : 14.80  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 11.35  
Tolerance mm : + 0.20

Rated speed rpm : 400  
  
Pressure hPa : 300  
rack travel mm : 12.55  
Tolerance mm : + 0.20

Pressure hPa : 450  
rack travel mm : 13.85  
Tolerance mm : + 0.20

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 450  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 217.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 13.30  
Rated speed rpm : 1095  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.70  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113

Combination No. : 0402648993

Injection pump  
Pump designation : PE8P120A320LS7838  
: -10

EP type number : 0412628854

Governor  
Governor design. : RQ300/950PA971-11  
Governor no. : 0421801764

Cust. part No. : 0260740202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 320.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.00  
Tolerance mm : + 0.05

---

Del. quantity  
cm3/1000 strokes : 254.0

---

Tolerance  
cm3/1000 strokes : + 1.0

---

Check tolerance  
cm3/1000S. : + 4.0

---

Speed  
Tolerance  
cm3/1000 strokes : 6.0

---

Check tolerance  
cm3/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.10  
Tolerance mm : + 0.30  
Del. quantity  
cm3/1000 strokes : 19.0  
Tolerance  
cm3/1000 strokes : + 3.0  
Check tolerance  
cm3/1000S. : + 6.0

Speed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.72  
Tolerance mm : + 0.10

Rated speed rpm : 1005  
guide sleeve  
travel mm : 6.34  
Tolerance mm : + 0.10

Rated speed rpm : 950  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 451

guide sleeve  
travel mm : 4.76  
Tolerance mm : + 0.10

Rated speed rpm : 580  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1190  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm3/1000 strokes : 254.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0

Speed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 9.0

RATED SPEED

control lever  
position degree : 98.0  
tolerance degree : + 4.0

rack travel mm : 14.00  
Rated speed rpm : 998  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1100  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1200



---

**LOW IDLE**

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

**Testing:**

Rated speed rpm : 300  
rack travel mm : 6.10  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 430  
Tolerance 1/min : ± 30

Rated speed rpm : 200

CRT mm min. : > 9.00

---

**TORQUE CONTROL**

Rated speed rpm : 550  
rack travel mm : 15.00  
Tolerance mm : ± 0.05

Rated speed rpm : 950  
rack travel mm : 15.00  
Tolerance mm : ± 0.05

---

**ANEROID/ALTITUDE  
COMPENSATOR TEST****SETTING**

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 15.00  
Tolerance mm : ± 0.05

**MEASUREMENT**

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.10  
Tolerance mm : ± 0.15

Rated speed rpm : 400

Pressure hPa : 250  
rack travel mm : 10.95  
Tolerance mm : ± 0.15

Pressure hPa : 550

rack travel mm : 13.85  
Tolerance mm : ± 0.15

---

**START CUT-OUT**

Rated speed rpm : > 190  
Check  
speed 1/min : > 170  
Rated speed rpm : > 220  
Check  
speed 1/min : > 240

---

**FUEL DELIVERY CHARACTERISTICS**

Aneroid pressure  
hPa : 550  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

**BREAKAWAY**

Rack travel in mm : 14.00  
Rated speed rpm : 998  
Tolerance 1/min : +- 8

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.10  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113

Combination No. : 0402648994

Injection pump  
Pump designation : PE8P120A320LS7838  
: -10

EP type number : 0412628854

Governor  
Governor design. : RQV300...950PA797  
: -41

Governer no. : 0421814126

Cust. part No. : 0260740302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 320.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

E21

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.00  
Tolerance mm : + 0.05

---

Del. quantity  
cm3/1000 strokes : 254.0

---

Tolerance  
cm3/1000 strokes : + 1.0

---

Check tolerance  
cm3/1000S. : + 4.0

---

Speed  
Tolerance  
cm3/1000 strokes : 6.0

---

Check tolerance  
cm3/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.10  
Tolerance mm : + 0.30  
Del. quantity  
cm3/1000 strokes : 19.0  
Tolerance  
cm3/1000 strokes : + 3.0  
Check tolerance  
cm3/1000S. : + 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.29  
Tolerance mm : + 0.20

Rated speed rpm : 1012  
guide sleeve  
travel mm : 8.60  
Tolerance mm : + 0.15

Rated speed rpm : 567  
guide sleeve  
travel mm : 4.66  
Tolerance mm : + 0.25

Rated speed rpm : 617

guide sleeve  
travel mm : 5.23  
Tolerance mm : + 0.25

Rated speed rpm : 780  
guide sleeve  
travel mm : 6.31  
Tolerance mm : + 0.25

Rated speed rpm : 1092  
guide sleeve  
travel mm : 10.00  
Tolerance mm : + 0.25

Rated speed rpm : 1190  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1035

Rack travel in mm : 14.00  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm3/1000 strokes : 254.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0  
Speed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 9.0

RATED SPEED

control lever  
position degree : 123.0  
tolerance degree : + 4.0

rack travel mm : 14.00  
Rated speed rpm : 995  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1100  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1200

---

LOW IDLE

control lever  
position degree : 84.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 6.10  
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 8.90

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 350

---

TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.00  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 15.00  
Tolerance mm : + 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 15.00  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.10  
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 250  
rack travel mm : 10.95  
Tolerance mm : + 0.15

Pressure hPa : 550  
rack travel mm : 13.85  
Tolerance mm : + 0.15

---

START CUT-OUT

Rated speed rpm : > 190  
Check  
speed 1/min : > 170  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 550  
Rated speed rpm : 70  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 14.00  
Rated speed rpm : 995  
Tolerance 1/min : +- 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.10  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.03.95  
Test oil : ISO 4113  
  
Combination No. : 0402648995  
  
Injection pump  
Pump designation : PE8P120A320LS7847-2  
EP type number : 0412628885  
  
Governor  
Governor design. : RQV300...950PA1168  
: -4  
Governor no. : 0421814130  
  
Cust. part No. : 0250749602

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM402 LA  
Power KW : 280.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1417413025  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holde  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Lube oil : 1409918004  
  
Test lines : 1680750075

E25

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315

Tolerance : ± 0.30

Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80

Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 239.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 5.70  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.49  
Tolerance mm : + 0.25

Rated speed rpm : 1012  
guide sleeve  
travel mm : 8.56  
Tolerance mm : + 0.25

Rated speed rpm : 589  
guide sleeve  
travel mm : 4.97  
Tolerance mm : + 0.25

Rated speed rpm : 639  
guide sleeve  
travel mm : 5.51  
Tolerance mm : + 0.25

Rated speed rpm : 790  
guide sleeve  
travel mm : 6.48  
Tolerance mm : + 0.25

Rated speed rpm : 1100  
guide sleeve  
travel mm : 10.00  
Tolerance mm : + 0.25

Rated speed rpm : 1210  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1035

Rack travel in mm : 13.00  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 239.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
position degree : 123.0  
tolerance degree : + 4.0

rack travel mm : 13.00  
Rated speed rpm : 998  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1090  
Tolerance 1/min : + 15



rack travel mm : 0.75  
Tolerance mm : ± 0.75  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 3.50  
Tolerance mm : ± 0.10

Rated speed rpm : 200  
CRT mm min. : > 5.50

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 14.80  
Tolerance mm : ± 0.05

Rated speed rpm : 950  
rack travel mm : 14.15  
Tolerance mm : ± 0.10

Rated speed rpm : 860  
rack travel mm : 14.35  
Tolerance mm : ± 0.10

Rated speed rpm : 820  
rack travel mm : 14.65  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 1200  
rack travel mm : 14.80  
Tolerance mm : ± 0.05

#### MEASUREMENT

E27

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 10.60  
Tolerance mm : ± 0.20

Rated speed rpm : 400

Pressure hPa : 450  
rack travel mm : 12.90  
Tolerance mm : ± 0.10

Pressure hPa : 300  
rack travel mm : 11.90  
Tolerance mm : ± 0.15

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 450  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 216.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 998  
Tolerance 1/min : +- 8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.30  
Tolerance mm : +- 0.25  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.70  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.03.95  
Test oil : ISO 4113

Combination No. : 0402648996

Injection pump  
Pump designation : PE8P120A320LS7839  
: -10

EP type number : 0412628855

Governor  
Governor design. : RQV300...950PA1199  
: -1  
Governor no. : 0421814131

Cust. part No. : 0250749702

Customer-spec. information

Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 75  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

F01

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 14.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

BASIC SETTING

Rated speed rpm : 550

---

Rack travel in mm : 15.20  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 5.20  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.29  
Tolerance mm : + 0.20

Rated speed rpm : 1009  
guide sleeve  
travel mm : 8.55  
Tolerance mm : + 0.15

Rated speed rpm : 567  
guide sleeve  
travel mm : 4.66  
Tolerance mm : + 0.25

Rated speed rpm : 617

F02

guide sleeve  
travel mm : 5.23  
Tolerance mm : + 0.25

Rated speed rpm : 780  
guide sleeve  
travel mm : 6.31  
Tolerance mm : + 0.25

Rated speed rpm : 1092  
guide sleeve  
travel mm : 10.00  
Tolerance mm : + 0.25

Rated speed rpm : 1190  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1030

Rack travel in mm : 14.20  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 123.0  
tolerance degree : + 4.0

rack travel mm : 14.20  
Rated speed rpm : 995  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1090  
Tolerance 1/min : + 15  
  
rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1250

---

LOW IDLE

control lever  
position degree : 79.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 3.50  
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 6.50

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 320

---

TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.20  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 15.20  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 15.20  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 400  
Pressure hPa : 1200  
rack travel mm : 15.20  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 8.25  
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 300  
rack travel mm : 9.95  
Tolerance mm : + 0.20

Pressure hPa : 500  
rack travel mm : 11.65  
Tolerance mm : + 0.20

---

START CUT-OUT

Rated speed rpm : > 190

Check  
speed 1/min : > 170

Rated speed rpm : < 220

Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 500  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 14.20  
Rated speed rpm : 995  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 255.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.03.95  
Test oil : ISO 4113

Combination No. : 0402648997

Injection pump  
Pump designation : PE8P120A320LS7838  
: -10

EP type number : 0412628854

Governor  
Governor design. : RQ300/950PA993-12  
Governor no. : 0421801776

Cust. part No. : 0260740402

Customer-spec. information

Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 320.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : + 1.0

Tolerance L/h : + 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Lube oil : 1409918004

F05

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 5.25  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50  
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315

Tolerance : + 0.30

Check  
tolerance °NW : + 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.10  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.14  
Tolerance mm : ± 0.10

Rated speed rpm : 1005  
guide sleeve  
travel mm : 6.35  
Tolerance mm : ± 0.10

Rated speed rpm : 950  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 414

guide sleeve  
travel mm : 4.91  
Tolerance mm : ± 0.10

Rated speed rpm : 500  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1170  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
position degree : 99.0  
tolerance degree : ± 4.0

rack travel mm : 14.00  
Rated speed rpm : 998  
Tolerance 1/min : ± 8

rack travel mm : 4.00  
Rated speed rpm : 1090  
Tolerance 1/min : ± 15

rack travel mm : 0.75  
Tolerance mm : ± 0.75  
Rated speed rpm : 1200



---

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 3.70  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 355  
Tolerance 1/min : ± 20

Rated speed rpm : 200  
CRT mm min. : > 5.70

---

TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.00  
Tolerance mm : ± 0.05

Rated speed rpm : 950  
rack travel mm : 15.00  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 15.00  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.10  
Tolerance mm : ± 0.15

Rated speed rpm : 400

Pressure hPa : 250  
rack travel mm : 10.95  
Tolerance mm : ± 0.20

Pressure hPa : 550

rack travel mm : 13.85  
Tolerance mm : ± 0.15

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 550  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

BREAKAWAY

Rack travel in mm : 14.00  
Rated speed rpm : 998  
Tolerance 1/min : + 8

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.10  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.03.95  
Test oil : ISO 4113  
  
Combination No. : 0402666802  
  
Injection pump  
Pump designation : PE6P120A320/3LS7883  
EP type number : 0412626938  
  
Governor  
Governor design. : RSV600...1050POA591  
Governor no. : 0421833457  
  
Cust. part No. : 0250746802

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 401 LA  
Power KW : 213.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1417413047  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Tolerance l/h : ± 10.0  
  
Test nozzle holde  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1680750075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 12.40  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 600

Rack travel in mm : 3.80  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 1.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 202.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

F10

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 88.0  
tolerance degree : ± 4.0

---

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 700  
rack travel mm : 3.80  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 630  
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.50

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

TORQUE CONTROL

Rated speed rpm : 1030  
rack travel mm : 12.40  
Tolerance mm : ± 0.05

Rated speed rpm : 700  
rack travel mm : 12.40  
Tolerance mm : ± 0.10

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -

Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 201.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

LOW IDLE

Rated speed rpm : 600  
rack travel mm : 3.80  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113

Combination No. : 0402736859

Injection pump  
Pump designation : PES6P120A12ORS7261  
EP type number : 0412726876

Governor  
Governor design. : RQV350...1100PA924  
: -10K  
Governor no. : 0421815429

Cust. part No. : 3282465

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 176.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 18.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 1.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
°NW after s.o.d. : 7.0  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.85  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 145.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 9.0
2nd speed rpm	: 350
Rack travel in mm	: 5.10
Tolerance mm	: ± 0.30
Del. quantity cm <sup>3</sup> /1000 strokes	: 26.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 5.0
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 7.0
Check tolerance cm <sup>3</sup> /1000S.	: 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1400

Rack travel in mm	: 9.00
Tolerance mm	: ± 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: 900
Del. quantity cm <sup>3</sup> /1000 strokes	: 145.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0

Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

RATED SPEED

control lever position degree	: 113.0
tolerance degree	: ± 4.0

rack travel mm	: 9.80
Rated speed rpm	: 1145
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1255
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1350

LOW IDLE

control lever position degree	: 68.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 350
rack travel mm	: 5.10
Tolerance mm	: ± 0.10

Rated speed rpm	: 250
-----------------	-------

CRT mm min.	: > 6.60
-------------	----------

CONTINUOUS-ACTION CONTROL

Rated speed rpm	: 400
-----------------	-------

TORQUE CONTROL

Rated speed rpm	: 1100
rack travel mm	: 10.85
Tolerance mm	: ± 0.05

Rated speed rpm	: 700
rack travel mm	: 10.00
Tolerance mm	: ± 0.10

Rated speed rpm : 900  
rack travel mm : 10.35  
Tolerance mm : +- 0.15

Rated speed rpm : 400  
rack travel mm : 9.15  
Tolerance mm : +- 0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1100  
Pressure hPa : 900  
rack travel mm : 10.85  
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 7.70  
Tolerance mm : +- 0.10

Rated speed rpm : 1100

Pressure hPa : 320  
rack travel mm : 8.50  
Tolerance mm : +- 0.20

Pressure hPa : 560  
rack travel mm : 10.25  
Tolerance mm : +- 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 270  
Check  
speed 1/min : < 290

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

BREAKAWAY

Rack travel in mm : 9.80  
Rated speed rpm : 1145  
Tolerance 1/min : +- 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 19.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 5.10  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.03.95  
Test oil : ISO 4113  
  
Combination No. : 0402746953  
  
Injection pump  
Pump designation : PES6P120A32ORS7294  
EP type number : 0412726895  
  
Governor  
Governor design. : RQV275...1000PA1001  
: -1  
Governor no. : 0421813936  
  
Cust. part No. : CCEP-5135 66-213

Customer-spec. information  
Customer : RVI  
Motor : MIDR 063540 J/3  
Power KW : 306.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 2417413071  
  
Inlet press. bar : 2.5  
Tolerance bar : + 0.1  
  
Test nozzle holde  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
  
Lube oil : 1409918004  
  
Test Lines : 1680750089

F15

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 4.55  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 13.50  
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.50

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.80

Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 310.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

2nd speed rpm : 300

Rack travel in mm : -8.60  
Tolerance mm : + 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.29  
Tolerance mm : + 0.10

Rated speed rpm : 1086  
guide sleeve  
travel mm : 8.46  
Tolerance mm : + 0.10

Rated speed rpm : 773  
guide sleeve  
travel mm : 6.09  
Tolerance mm : + 0.20

Rated speed rpm : 343  
guide sleeve  
travel mm : 2.33  
Tolerance mm : + 0.20

Rated speed rpm : 393  
guide sleeve  
travel mm : 2.99  
Tolerance mm : + 0.20

Rated speed rpm : 490  
guide sleeve  
travel mm : 3.81  
Tolerance mm : + 0.20

Rated speed rpm : 1370  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1185

Rack travel in mm : 12.60  
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 310.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
position degree : 302.0  
tolerance degree : + 4.0

rack travel mm : -1.00  
Rated speed rpm : 1070  
Tolerance 1/min : + 5

rack travel mm : -9.70  
Rated speed rpm : 1210  
Tolerance 1/min : + 15

rack travel mm : -13.25  
Tolerance mm : + 0.55  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 246.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : -8.60  
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm max. : < -7.20

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 370

---

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1000  
Tolerance mm : + 0.10

Rated speed rpm : 500  
rack travel mm : -5.50  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -5.00  
Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 240

rack travel mm : -3.80  
Tolerance mm : + 0.20

Pressure hPa : 600  
rack travel mm : -0.95  
Tolerance mm : + 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 225  
Check  
speed 1/min : < 245

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 287.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 8.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

BREAKAWAY

Rack travel in mm : -1.00

Rated speed rpm : 1070  
Tolerance 1/min : +- 5

---

STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 14.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : -8.60  
Tolerance mm : +- 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.03.95  
Test oil : ISO 4113  
  
Combination No. : 0402746993  
  
Injection pump  
Pump designation : PES6P120A720LS7341  
EP type number : 0412726913  
  
Governor  
Governor design. : RQV350...1150PA1159  
Governor no. : 0421814099

Cust. part No. : 0250742302

Customer-spec. information

Customer : MTU  
Motor : 6-R-183  
Power kW : 440.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 90  
Tolerance L/h : ± 10.0

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

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Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30

Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 10.20  
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 273.0
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 6.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0
<hr/>	
2nd speed rpm	: 350
<hr/>	
Rack travel in mm	: 4.10
Tolerance mm	: ± 0.30
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 17.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 6.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve	
travel mm	: 1.53
Tolerance mm	: ± 0.15
<hr/>	
Rated speed rpm	: 1206
guide sleeve	
travel mm	: 8.35
Tolerance mm	: ± 0.20
<hr/>	
Rated speed rpm	: 950
guide sleeve	
travel mm	: 5.78
Tolerance mm	: ± 0.25
<hr/>	
Rated speed rpm	: 416
guide sleeve	
travel mm	: 2.77
Tolerance mm	: ± 0.25

Rated speed rpm	: 466
guide sleeve	
travel mm	: 3.35
Tolerance mm	: ± 0.25

Rated speed rpm	: 600
guide sleeve	
travel mm	: 3.83
Tolerance mm	: ± 0.25

Rated speed rpm	: 1308
guide sleeve	
travel mm	: 10.00
Tolerance mm	: ± 0.25

Rated speed rpm	: 1410
guide sleeve	
travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1410

Rack travel in mm	: 13.00
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure	
hPa	: 800
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 273.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

RATED SPEED

control lever	
position degree	: 120.0
tolerance degree	: ± 4.0
<hr/>	
rack travel mm	: 13.50
Rated speed rpm	: 1195
Tolerance 1/min	: ± 5

rack travel mm : 4.00  
Rated speed rpm : 1300  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1400

---

LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 350  
rack travel mm : 4.10  
Tolerance mm : + 0.10

Rated speed rpm : 250  
CRT mm min. : > 5.60

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 425

---

TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 10.20  
Tolerance mm : + 0.05

Rated speed rpm : 1150  
rack travel mm : 14.50  
Tolerance mm : + 0.10

Rated speed rpm : 800  
rack travel mm : 14.50  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 6.20  
Tolerance mm : + 0.20

Pressure hPa : 200  
rack travel mm : 7.10  
Tolerance mm : + 0.05

Pressure hPa : 400  
rack travel mm : 9.10  
Tolerance mm : + 0.10

Pressure hPa : 1300  
rack travel mm : 11.70  
Tolerance mm : + 0.05

Pressure hPa : 1700  
rack travel mm : 13.80  
Tolerance mm : + 0.10

---

START CUT-OUT

Rated speed rpm : > 220  
Check  
speed 1/min : > 200  
Rated speed rpm : < 270  
Check  
speed 1/min : < 290

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 344.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

BREAKAWAY

Rack travel in mm : 13.50  
Rated speed rpm : 1195

Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 420.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.10  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.03.95  
 Test oil : ISO 4113  
 Combination No. : 0403244045  
 Injection pump  
 Pump designation : PES4MW100/72ORS1524  
 EP type number : 0413204021  
 Governor  
 Governor design. : RQV300...1300MW132  
 : -12  
 Governor no. : 0420083329  
 Cust. part No. : 0240740902

Customer-spec. information  
 Customer : MB-NFZ  
 Motor : OM364LA  
 Power kW : 77.0

TEST BENCH REQUIREMENTS

Test oil inlet  
 temp. °C : 40  
 Tolerance °C : ± 2.0  
 Overflow valve : 1419992198  
 Inlet press. bar : 1.5  
 Test nozzle holde  
 assembly : 1688901101  
 Opening pressure  
 bar : 208.5  
 Tolerance bar : ± 1.5  
 Test Lines : 1680750089  
 Outside diameter : 8.0

x inside diameter : 3.0  
 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
 Tolerance bar : ± 1.0  
 Prestroke mm : 4.55  
 Tolerance mm : ± 0.05  
 test only : ± 0.10  
 Rack travel in mm : 11.00  
 Firing order : 1-3-4-2  
 Phasing : 0-90-180-270  
 Tolerance : ± 0.50  
 Check  
 tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300  
 Rack travel in mm : 11.00  
 Tolerance mm : ± 0.05  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 86.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0  
 2nd speed rpm : 300  
 Rack travel in mm : 4.40  
 Tolerance mm : ± 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.5  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 4.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 0.91  
 Tolerance mm : ± 0.25

Rated speed rpm : 1353  
 guide sleeve  
 travel mm : 7.14  
 Tolerance mm : ± 0.25

Rated speed rpm : 1130  
 guide sleeve  
 travel mm : 5.40  
 Tolerance mm : ± 0.25

Rated speed rpm : 610  
 guide sleeve  
 travel mm : 2.96  
 Tolerance mm : ± 0.25

Rated speed rpm : 660  
 guide sleeve  
 travel mm : 3.31  
 Tolerance mm : ± 0.25

Rated speed rpm : 780  
 guide sleeve  
 travel mm : 3.72  
 Tolerance mm : ± 0.25

Rated speed rpm : 1679  
 guide sleeve  
 travel mm : 12.00  
 Tolerance mm : ± 0.25

Rated speed rpm : 1780  
 guide sleeve  
 travel mm : 13.50  
 Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever  
 position degree : 111  
 Rated speed rpm : 1350

Rack travel in mm : 10.00  
 Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 86.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0

RATED SPEED

control lever  
 position degree : 110.0  
 tolerance degree : ± 4.0

rack travel mm : 10.00  
 Rated speed rpm : 1345  
 Tolerance 1/min : ± 5

rack travel mm : 4.00  
 Rated speed rpm : 1435  
 Tolerance 1/min : ± 15

rack travel mm : 0.50  
 Tolerance mm : ± 0.50  
 Rated speed rpm : 1550

LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 4.40  
Tolerance mm : ± 0.10

Rated speed rpm : 200

CRT mm min. : > 5.00

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.00  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 11.00  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 11.00  
Tolerance mm : ± 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : ± 0.10

Rated speed rpm : 500

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 200  
Check  
speed 1/min : < 220

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 71.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

#### BREAKAWAY

Rack travel in mm : 10.00  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 4.40  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 4.0



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 20.03.95
Test oil : ISO 4113
Combination No. : 0403246047

Injection pump
Pump designation : PES6MW100/72ORS1522
EP type number : 0413206023

Governor
Governor design. : RQV300...1300MW148
Governor no. : 0420083325

Cust. part No. : 0250744802

Customer-spec. information
Customer : MB-NFZ
Motor : OM366LA
Power KW : 155.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1688901101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.30
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 118.0

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 3.0

Spread

Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.5  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0  
 2nd speed rpm : 300  
 Rack travel in mm : 4.20  
 Tolerance mm : + 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 0.92  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 1355  
 guide sleeve  
 travel mm : 9.32  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 1078  
 guide sleeve  
 travel mm : 7.06  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 514  
 guide sleeve  
 travel mm : 2.14  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 564  
 guide sleeve  
 travel mm : 2.60  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 740  
 guide sleeve  
 travel mm : 3.93  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 1720

guide sleeve  
 travel mm : 13.50  
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1500  
 Rack travel in mm : 10.00  
 Tolerance mm : + 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 1200  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 118.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0

RATED SPEED

control lever  
 position degree : 120.0  
 tolerance degree : + 4.0  
  
 rack travel mm : 12.30  
 Rated speed rpm : 1345  
 Tolerance 1/min : + 5  
  
 rack travel mm : 4.00  
 Rated speed rpm : 1485  
 Tolerance 1/min : + 15  
  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1600

LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 4.20  
Tolerance mm : ± 0.10

Rated speed rpm : 200  
CRT mm min. : > 5.00

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.30  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 13.30  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.30  
Tolerance mm : ± 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 800  
rack travel mm : 4.40  
Tolerance mm : ± 0.10

Pressure hPa : 300  
rack travel mm : 1.20  
Tolerance mm : ± 0.10

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 200  
Check  
speed 1/min : < 220

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 114.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 48.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

#### BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 1345  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 4.20  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed

Tolerance  
cm3/1000 strokes : 2.0  
Check tolerance  
cm3/1000S. : 4.0





BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.03.95  
Test oil : ISO 4113

Combination No. : 0403444112

Injection pump  
Pump designation : PES4MW100/72ORS1127  
EP type number : 0413404103

Governor  
Governor design. : RQV300...1300MW48-2  
Governor no. : 0420083110

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 364 A  
Power KW : 85.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0

G03

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 81.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0  
 2nd speed rpm : 300  
 Rack travel in mm : 7.85  
 Tolerance mm : + 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1330

Rack travel in mm : 16.50  
 Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 81.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

RATED SPEED

control lever  
 position degree : 120.0  
 tolerance degree : + 4.0

G04

rack travel mm : 10.10  
 Rated speed rpm : 1345  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1445  
 Tolerance 1/min : + 15

rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1550

LOW IDLE

control lever  
 position degree : 86.0  
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
 rack travel mm : 7.85  
 Tolerance mm : + 0.05

Rated speed rpm : 100

CRT mm min. : > 9.50

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 465

TORQUE CONTROL

Rated speed rpm : 1300  
 rack travel mm : 11.15  
 Tolerance mm : + 0.05

Rated speed rpm : 750  
 rack travel mm : 11.95  
 Tolerance mm : + 0.10

Rated speed rpm : 585  
 rack travel mm : 12.20  
 Tolerance mm : + 0.10

Rated speed rpm : 1000  
 rack travel mm : 11.20  
 Tolerance mm : + 0.10

START CUT-OUT

Rated speed rpm : > 100

Check  
speed 1/min : > 80  
Rated speed rpm : < 230  
Check  
speed 1/min : < 250

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 585  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 72.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

BREAKAWAY

Rack travel in mm : 10.10  
Rated speed rpm : 1345  
Tolerance 1/min : +- 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 8.0

---

LOW IDLE

Rated speed rpm : 300

G05

rack travel mm : 7.85  
Tolerance mm : +- 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.03.95  
Test oil : ISO 4113

Combination No. : 0403474022

Injection pump  
Pump designation : PES4MW100/72ORS1151  
EP type number : 0413404104

Governor  
Governor design. : RSV350...1300MWOA329  
: -12  
Governor no. : 0420085189

Cust. part No. :

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364A  
Power KW : 79.0

---

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

G06

x inside diameter : 3.0  
x length mm : 600

---

REMARKS

Test hydr. locking device for starting  
with 500...1000 hPa air pressure.

---

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

---

BASIC SETTING

Rated speed rpm : 1280

---

Rack travel in mm : 10.95  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 81.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

<hr/>	
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	3.5
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	6.0
2nd speed rpm :	350
Rack travel in mm :	> 6.40
Tolerance mm :	+ 0.40
Del. quantity	
cm <sup>3</sup> /1000 strokes :	12.0
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 2.0
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 4.5
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	3.5
Check tolerance	
cm <sup>3</sup> /1000S. :	5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree :	- 3
Rated speed rpm :	800
Rack travel in mm :	0.65
Tolerance mm :	+ 0.35
governor spring	
pre-tension	
click setting x :	6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1280
Aneroid pressure	
hPa :	700
Del. quantity	
cm <sup>3</sup> /1000 strokes :	81.0
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 1.0
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 3.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes :	3.5

Check tolerance	
cm <sup>3</sup> /1000S. :	6.0

RATED SPEED

control lever	
position degree :	99.0
tolerance degree :	+ 4.0
rack travel mm :	1.00
Tolerance mm :	+ 0.70
Rated speed rpm :	1550

LOW IDLE

Testing:

Rated speed rpm :	350
rack travel mm :	6.40
Tolerance mm :	+ 0.40
rack travel mm :	2.00
Rated speed rpm :	100
CRT mm min. :	> 19.00

TORQUE CONTROL

Rated speed rpm :	1280
rack travel mm :	10.95
Tolerance mm :	+ 0.05
Rated speed rpm :	600
rack travel mm :	11.85
Tolerance mm :	+ 0.10
Rated speed rpm :	1000
rack travel mm :	11.80
Tolerance mm :	+ 0.10
Rated speed rpm :	1175
rack travel mm :	11.15
Tolerance mm :	+ 0.15

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm :	500
Pressure hPa :	700
rack travel mm :	11.85
Tolerance mm :	+ 0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.90  
Tolerance mm : +- 0.10  
  
Rated speed rpm : 500  
  
Pressure hPa : 300  
rack travel mm : 11.30  
Tolerance mm : +- 0.15  
  
Pressure hPa : 200  
rack travel mm : 10.80  
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 700  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0  
  
Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 46.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 8.0

LOW IDLE

Rated speed rpm : 350  
rack travel mm : > 6.40  
Tolerance mm : +- 0.40  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.03.95  
Test oil : ISO 4113  
Combination No. : 0400866159  
Injection pump  
Pump designation : PES6A85D410/3RS2761  
EP type number : 0410886895  
Governor  
Governor design. : RSV325...1400A2C2245  
: L  
Governor no. : 0420232537  
Cust. part No. :

Customer spec. information

Customer : KHD  
Motor : BF6L913T  
Power KW : 85.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1419992198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0681343009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1680750014  
Outside diameter : 6.0

G09

x inside diameter : 2.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.55  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 1.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200  
Rack travel in mm : 10.45  
Tolerance mm : ± 0.05  
Del. quantity  
cm3/1000 strokes : 70.0  
Tolerance  
cm3/1000 strokes : ± 0.5  
Check tolerance  
cm3/1000S. : ± 2.5  
Speed

Tolerance  
 cm3/1000 strokes : 3.0

---

Check tolerance  
 cm3/1000S. : 7.0

2nd speed rpm : 325

Rack travel in mm : 8.00  
 Tolerance mm : + 0.10

Del. quantity  
 cm3/1000 strokes : 16.0  
 Tolerance  
 cm3/1000 strokes : + 3.0  
 Check tolerance  
 cm3/1000S. : + 5.0

Speed  
 Tolerance  
 cm3/1000 strokes : 4.5  
 Check tolerance  
 cm3/1000S. : 7.5

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800

Rack travel in mm : 0.50  
 Tolerance mm : + 0.20

governor spring  
 pre-tension  
 click setting x : 3.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
 Aneroid pressure  
 hPa : -

Del. quantity  
 cm3/1000 strokes : 70.0  
 Tolerance  
 cm3/1000 strokes : + 0.5  
 Check tolerance  
 cm3/1000S. : + 2.5

Speed  
 Tolerance  
 cm3/1000 strokes : 3.0  
 Check tolerance  
 cm3/1000S. : 7.0

---

RATED SPEED

control lever  
 position degree : 99.0  
 tolerance degree : + 4.0

rack travel mm : 9.45  
 Rated speed rpm : 1245  
 Tolerance 1/min : + 5

rack travel mm : 4.00  
 Rated speed rpm : 1280  
 Tolerance 1/min : + 15

rack travel mm : 0.85  
 Tolerance mm : + 0.55  
 Rated speed rpm : 1445

rack travel mm : 4.00  
 Rated speed rpm : 1315

---

LOW IDLE

control lever  
 position degree : 68.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
 rack travel mm : 7.50

Testing:

Rated speed rpm : 325  
 rack travel mm : 8.00  
 Tolerance mm : + 0.10

rack travel mm : 2.00  
 Rated speed rpm : 490  
 Tolerance 1/min : + 30

Rated speed rpm : 100  
 CRT mm min. : > 19.50

---

TORQUE CONTROL

Rated speed rpm : 1200  
 rack travel mm : 10.45  
 Tolerance mm : + 0.05

Rated speed rpm : 500  
 rack travel mm : 11.00



Tolerance mm : + 0.05  
Rated speed rpm : 800  
rack travel mm : 11.00  
Tolerance mm : + 0.10

Rated speed rpm : 975  
rack travel mm : 10.80  
Tolerance mm : + 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 58.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 65.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

---

#### BREAKAWAY

Rack travel in mm : 9.45  
Rated speed rpm : 1245  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.20  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 7.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 10.0

---

#### LOW IDLE

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.03.95  
Test oil : ISO 4113  
Combination No. : 0401848828  
Injection pump  
Pump designation : PE8P120A520/4LS3850  
EP type number : 0411828723  
Governor  
Governor design. : RQ300/900PA1230  
Governor no. : 0421801792

Cust. part No. :

Customer-spec. information  
Customer : DAEWOO  
Motor : D2848LE

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Test nozzle holde  
assembly : 1688901105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Lube oil : 1409918004  
Test lines : 1680750089  
Outside diameter : 8.0

G12

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.90  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

2nd speed rpm : 300

Rack travel in mm : 6.80  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.44  
Tolerance mm : + 0.10

Rated speed rpm : 932  
guide sleeve  
travel mm : 6.37  
Tolerance mm : + 0.10

Rated speed rpm : 880  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 433  
guide sleeve  
travel mm : 4.94  
Tolerance mm : + 0.10

Rated speed rpm : 510  
guide sleeve  
travel mm : 6.00  
Tolerance mm : + 0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600  
Rack travel in mm : 20.00  
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

RATED SPEED

control lever  
position degree : 31.0  
tolerance degree : + 4.0

control lever  
position degree : 93.0  
tolerance degree : + 4.0

rack travel mm : 10.90  
Rated speed rpm : 925  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 965  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1100

LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : +- 4.0

control lever  
position degree : 13.0  
tolerance degree : +- 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 7.40  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 425  
Tolerance 1/min : +- 20

Rated speed rpm : 200

CRT mm min. : > 9.80

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 11.90  
Tolerance mm : +- 0.05

Rated speed rpm : 650  
rack travel mm : 11.90  
Tolerance mm : +- 0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm3/1000 strokes : 212.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0

---

#### BREAKAWAY

G14

Rack travel in mm : 10.90  
Rated speed rpm : 925  
Tolerance 1/min : +- 5

---

#### STARTING FUEL DELIVERY

Del. quantity  
cm3/1000 strokes : 160.0  
Tolerance  
cm3/1000 strokes : +- 20.0  
Check tolerance  
cm3/1000S. : +- 24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.80  
Tolerance mm : +- 0.30  
Del. quantity  
cm3/1000 strokes : 24.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.03.95  
Test oil : ISO 4113  
Combination No. : 0401849757  
Injection pump  
Pump designation : PE10P120A520/4LS3863  
EP type number : 0411897711  
Governor  
Governor design. : RQ300/900PA1230  
Governor no. : 0421801792

Cust. part No. :

Customer-spec. information  
Customer : DAEWOO  
Motor : D2840LE

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750089

Outside diameter : 8.0

G15

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 10- 9- 4- 1- 8  
: - 7- 6- 3- 5  
: - 2

Phasing : 0-45-72-117-144  
: -189-216-261-288  
: -333  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 10

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.90  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 208.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: +- 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: +- 4.0
<hr/>	
Speed Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 10.0
2nd speed rpm	: 300
<hr/>	
Rack travel in mm	: 6.80
Tolerance mm	: +- 0.30
Del. quantity cm <sup>3</sup> /1000 strokes	: 24.0
Tolerance cm <sup>3</sup> /1000 strokes	: +- 3.0
Check tolerance cm <sup>3</sup> /1000S.	: +- 6.0
Speed Tolerance cm <sup>3</sup> /1000 strokes	: 7.0
Check tolerance cm <sup>3</sup> /1000S.	: 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve travel mm	: 1.44
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm	: 932
guide sleeve travel mm	: 6.37
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm	: 880
guide sleeve travel mm	: 6.00
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm	: 433
guide sleeve travel mm	: 4.94
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm	: 510

guide sleeve travel mm	: 6.00
Tolerance mm	: +- 0.10
<hr/>	
Rated speed rpm	: 1050
guide sleeve travel mm	: 11.50
Tolerance mm	: +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 600
<hr/>	
Rack travel in mm	: 20.00
Tolerance mm	: +- 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 850
Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 208.0
Tolerance cm <sup>3</sup> /1000 strokes	: +- 1.0
Check tolerance cm <sup>3</sup> /1000S.	: +- 4.0
Speed Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 10.0

RATED SPEED

control lever position degree	: 31.0
tolerance degree	: +- 4.0
<hr/>	
control lever position degree	: 93.0
tolerance degree	: +- 4.0
<hr/>	
rack travel mm	: 10.90
Rated speed rpm	: 925
Tolerance 1/min	: +- 5
<hr/>	
rack travel mm	: 4.00
Rated speed rpm	: 965
Tolerance 1/min	: +- 15
<hr/>	
rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1100

---

LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 4.0

control lever  
position degree : 13.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 7.40  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 425  
Tolerance 1/min : ± 20

Rated speed rpm : 200

CRT mm min. : > 9.80

---

TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 11.90  
Tolerance mm : ± 0.05

Rated speed rpm : 650  
rack travel mm : 11.90  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 212.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

BREAKAWAY

Rack travel in mm : 10.90  
Rated speed rpm : 925  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

LOW IDLE

Rated speed rpm : 500  
rack travel mm : 6.80  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.03.95  
Test oil : ISO 4113

Combination No. : 0402646603

Injection pump  
Pump designation : PE6P120A720RS7022  
EP type number : 0412626873

Governor  
Governor design. : RQV200...1000PA539  
: -15  
Governor no. : 0421814013

Cust. part No. : 1340658

---

Customer-spec. information  
Customer : SCANIA  
Motor : DS11 75

---

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Tolerance L/h : ± 10.0

Test nozzle holder  
assembly : 1688901104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

---

REMARKS

Start-of-delivery setting with ROBO diaphragm.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

---

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

---

BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 12.15  
Tolerance mm : ± 0.05

---



Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 250

Rack travel in mm : 4.70  
Tolerance mm : +- 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1050

Rack travel in mm : 16.50  
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

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Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

RATED SPEED

control lever  
position degree : 64.0  
tolerance degree : +- 4.0

control lever  
position degree : 116.0  
tolerance degree : +- 4.0

rack travel mm : 11.10  
Rated speed rpm : 1045  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1140  
Tolerance 1/min : +- 15

rack travel mm : 2.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1250

LOW IDLE

control lever  
position degree : 67.0  
tolerance degree : +- 4.0

control lever  
position degree : 23.0  
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min : +- 30

Rated speed rpm : 150  
CRT mm min. : > 6.20

TORQUE CONTROL

Rated speed rpm : 700

rack travel mm : 12.15  
Tolerance mm : +- 0.05  
  
Rated speed rpm : 1000  
rack travel mm : 12.15  
Tolerance mm : +- 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### MEASUREMENT

Pressure hPa : 390  
rack travel mm : 10.60  
Tolerance mm : +- 0.15

Pressure hPa : 590  
rack travel mm : 11.65  
Tolerance mm : +- 0.05

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

##### BREAKAWAY

Rack travel in mm : 11.10  
Rated speed rpm : 1045  
Tolerance 1/min : +- 5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100

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rack travel mm : 10.10  
Tolerance mm : +- 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 24.0

---

##### LOW IDLE

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.03.95  
Test oil : ISO 4113  
Combination No. : 0402646609  
Injection pump  
Pump designation : PE6P120A720RS7188  
: -10  
EP type number : 0412626924  
Governor  
Governor design. : RQV200...950PA725  
: -11  
Governor no. : 0421814033  
Cust. part No. : 1340418

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 11 36

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
Overflow quantity  
min. l/h : 230  
Tolerance l/h : ± 20.0  
Test nozzle holder  
assembly : 1688901104  
Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1680750008  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

REMARKS

Start-of-delivery setting with ROBO diaphragm.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm	:	13.85
Tolerance mm	:	+ 0.05
<hr/>		
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	252.0
<hr/>		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance		
cm <sup>3</sup> /1000S.	:	+ 4.0
<hr/>		
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	8.0
<hr/>		
Check tolerance		
cm <sup>3</sup> /1000S.	:	12.0
<hr/>		
2nd speed rpm	:	250
<hr/>		
Rack travel in mm	:	4.70
Tolerance mm	:	+ 0.30
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	17.0
Tolerance		
cm <sup>3</sup> /1000 strokes	:	+ 3.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	+ 6.0
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever		
position degree	:	- 1
Rated speed rpm	:	1150
<hr/>		
Rack travel in mm	:	9.50
Tolerance mm	:	+ 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	700
Aneroid pressure		
hPa	:	-
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	252.0

Tolerance		
cm <sup>3</sup> /1000 strokes	:	+ 1.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	+ 4.0
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	8.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	12.0

RATED SPEED

control lever		
position degree	:	62.0
tolerance degree	:	+ 4.0

control lever		
position degree	:	116.0
tolerance degree	:	+ 4.0

rack travel mm	:	12.80
Rated speed rpm	:	995
Tolerance 1/min	:	+ 5

rack travel mm	:	4.00
Rated speed rpm	:	1125
Tolerance 1/min	:	+ 15

rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	1250

LOW IDLE

control lever		
position degree	:	64.0
tolerance degree	:	+ 4.0

control lever		
position degree	:	10.0
tolerance degree	:	+ 4.0

Testing:

Rated speed rpm	:	250
rack travel mm	:	4.70
Tolerance mm	:	+ 0.10

Rated speed rpm	:	150
-----------------	---	-----

CRT mm min.	:	> 6.00
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CONTINUOUS-ACTION CONTROL

Rated speed rpm	:	270
-----------------	---	-----

---

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.85  
Tolerance mm : ± 0.05

Rated speed rpm : 950  
rack travel mm : 13.85  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.85  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.30  
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 375  
rack travel mm : 12.05  
Tolerance mm : ± 0.05

Pressure hPa : 185  
rack travel mm : 11.00  
Tolerance mm : ± 0.15

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 237.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 115.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 12.80  
Rated speed rpm : 995  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.30  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

LOW IDLE

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.03.95  
Test oil : ISO 4113

Combination No. : 0403246042

Injection pump  
Pump designation : PES6MW100/72ORS1522  
EP type number : 0413206023

Governor  
Governor design. : RQV300...1300MW148  
: -7  
Governor no. : 0420083328

Cust. part No. : 0250748102

Customer-spec. information

Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 155.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : <1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.5  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0  
  
 2nd speed rpm : 300  
  
 Rack travel in mm : 4.20  
 Tolerance mm : + 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 0.92  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 1355  
 guide sleeve  
 travel mm : 9.32  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 1078  
 guide sleeve  
 travel mm : 7.06  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 514  
 guide sleeve  
 travel mm : 2.14  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 564  
 guide sleeve  
 travel mm : 2.60  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 740  
 guide sleeve  
 travel mm : 3.93  
 Tolerance mm : + 0.25  
  
 Rated speed rpm : 1720

guide sleeve  
 travel mm : 13.50  
 Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1500  
  
 Rack travel in mm : 10.00  
 Tolerance mm : + 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : 1200  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 118.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0

RATED SPEED

control lever  
 position degree : 120.0  
 tolerance degree : + 4.0  
  
 rack travel mm : 12.45  
 Rated speed rpm : 1345  
 Tolerance 1/min : + 5  
  
 rack travel mm : 4.00  
 Rated speed rpm : 1475  
 Tolerance 1/min : + 15  
  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1600

LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 4.20  
Tolerance mm : + 0.10  
  
Rated speed rpm : 200  
  
CRT mm min. : > 5.00

---

TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 13.45  
Tolerance mm : + 0.05  
  
Rated speed rpm : 750  
rack travel mm : 13.45  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.30  
Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : + 0.05

Rated speed rpm : 500

Pressure hPa : 800  
rack travel mm : 4.30  
Tolerance mm : + 0.10

Pressure hPa : 300  
rack travel mm : 1.20  
Tolerance mm : + 0.10

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 200  
Check  
speed 1/min : < 220

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 114.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 48.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

BREAKAWAY

Rack travel in mm : 12.45  
Rated speed rpm : 1345  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 8.0

---

LOW IDLE



Rated speed rpm : 300  
rack travel mm : 4.20  
Tolerance mm : +- 0.20  
Del. quantity  
cm3/1000 strokes : 12.0  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 4.5  
Spread  
Tolerance  
cm3/1000 strokes : 2.0  
Check tolerance  
cm3/1000S. : 4.0



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.03.95  
Test oil : ISO 4113

Combination No. : 0403444154

Injection pump  
Pump designation : PES4MW100/720RS1127  
EP type number : 0413404103

Governor  
Governor design. : RQV300...1300MW48-2  
Governor no. : 0420083110

Cust. part No. : 0250746102

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 364 A  
Power KW : 85.0

---

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0

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x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

---

BASIC SETTING

Rated speed rpm : 1300

---

Rack travel in mm : 11.20  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0  
 2nd speed rpm : 300  
 Rack travel in mm : 7.85  
 Tolerance mm : ± 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.40  
 Tolerance mm : ± 0.25  
 Rated speed rpm : 1345  
 guide sleeve  
 travel mm : 8.59  
 Tolerance mm : ± 0.25  
 Rated speed rpm : 877  
 guide sleeve  
 travel mm : 5.00  
 Tolerance mm : ± 0.25  
 Rated speed rpm : 363  
 guide sleeve  
 travel mm : 2.05  
 Tolerance mm : ± 0.25  
 Rated speed rpm : 413  
 guide sleeve  
 travel mm : 2.50  
 Tolerance mm : ± 0.25  
 Rated speed rpm : 490  
 guide sleeve  
 travel mm : 2.93  
 Tolerance mm : ± 0.25  
 Rated speed rpm : 1600  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm : ± 0.50

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GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1330  
 Rack travel in mm : 16.50  
 Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 82.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

RATED SPEED

control lever  
 position degree : 114.0  
 tolerance degree : ± 4.0  
 rack travel mm : 10.10  
 Rated speed rpm : 1345  
 Tolerance 1/min : ± 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1435  
 Tolerance 1/min : ± 15  
 rack travel mm : 0.50  
 Tolerance mm : ± 0.50  
 Rated speed rpm : 1550

LOW IDLE

control lever  
 position degree : 83.0  
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 7.85  
Tolerance mm : + 0.05

Rated speed rpm : 100  
CRT mm min. : > 9.50

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.20  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 11.90  
Tolerance mm : + 0.15

Rated speed rpm : 585  
rack travel mm : 12.10  
Tolerance mm : + 0.10

Rated speed rpm : 1000  
rack travel mm : 11.35  
Tolerance mm : + 0.10

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check speed 1/min : > 80  
Rated speed rpm : < 230  
Check speed 1/min : < 250

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : -  
Rated speed rpm : 750  
Del. quantity cm<sup>3</sup>/1000 strokes : 78.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance cm<sup>3</sup>/1000S. : + 4.0  
Speed Tolerance cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure hPa : -  
Rated speed rpm : 585

Del. quantity cm<sup>3</sup>/1000 strokes : 74.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : 10.10  
Rated speed rpm : 1345  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance cm<sup>3</sup>/1000S. : + 8.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 7.85  
Tolerance mm : + 0.20  
Del. quantity cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance cm<sup>3</sup>/1000S. : + 4.5  
Speed Tolerance cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance cm<sup>3</sup>/1000S. : 5.5

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 09.03.95  
Test oil : ISO 4113

Combination No. : 0403446231

Injection pump  
Pump designation : PES6MW100/720RS1144  
EP type number : 0413406138

Governor  
Governor design. : RQV300...1400MW48-8  
Governor no. : 0420083175

Cust. part No. :

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 366 A  
Power KW : 125.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680715015

Outside diameter : 6.0

x inside diameter : 3.0

H03

x length mm : 600

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

---

## BASIC SETTING

Rated speed rpm : 1400

---

Rack travel in mm : 10.95  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 75.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0  
 2nd speed rpm : 300  
 Rack travel in mm : 8.05  
 Tolerance mm : + 0.25  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1470

Rack travel in mm : 16.50  
 Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 75.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

---

RATED SPEED

control lever  
 position degree : 119.0

H04

tolerance degree : + 4.0  
 rack travel mm : 9.90  
 Rated speed rpm : 1445  
 Tolerance 1/min : + 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1550  
 Tolerance 1/min : + 15  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1650

---

LOW IDLE

control lever  
 position degree : 88.0  
 tolerance degree : + 4.0

Testing:

Rated speed rpm : ~~300~~  
 rack travel mm : 8.05  
 Tolerance mm : + 0.25

Rated speed rpm : 100

CRT mm min. : > 9.50

---

TORQUE CONTROL

Rated speed rpm : 1400  
 rack travel mm : 10.95  
 Tolerance mm : + 0.05

Rated speed rpm : 750  
 rack travel mm : 12.20  
 Tolerance mm : + 0.10

Rated speed rpm : 950  
 rack travel mm : 11.95  
 Tolerance mm : + 0.15

Rated speed rpm : 1200  
 rack travel mm : 11.15  
 Tolerance mm : + 0.15

---

START CUT-OUT

Rated speed rpm : > 100  
 Check  
 speed 1/min : > 80  
 Rated speed rpm : < 200

Check  
speed 1/min : < 230

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

#### BREAKAWAY

Rack travel in mm : 9.90  
Rated speed rpm : 1445  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 8.05  
Tolerance mm : ± 0.25  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.03.95  
 Test oil : ISO 4113  
 Combination No. : 0403476117  
 Injection pump  
 Pump designation : PES6MW100/72ORS1131  
 : -1  
 EP type number : 0413406165  
 Governor  
 Governor design. : RSV750...1200MWOA329  
 : -15  
 Governor no. : 0420085193  
 Cust. part No. : 0220748502

Customer-spec. information  
 Customer : MB-NFZ  
 Motor : OM366LA  
 Power KW : 148.0

TEST BENCH REQUIREMENTS

Test oil inlet  
 temp. °C : 40  
 Tolerance °C : + 2.0  
 Overflow valve : 1419992198  
 Inlet press. bar : 1.5  
 Test nozzle holde  
 assembly : 1688901101  
 Opening pressure  
 bar : 208.5  
 Tolerance bar : + 1.5  
 Test lines : 1680750089  
 Outside diameter : 8.0

H06

x inside diameter : 3.0  
 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
 Tolerance bar : + 1.0  
 Prestroke mm : 3.65  
 Tolerance mm : + 0.05  
 test only : + 0.10  
 Rack travel in mm : 1.50  
 Tolerance mm : + 1.50  
 Firing order : 1- 5- 3- 6- 2-  
 : 4  
 Phasing : 0-60-120-180-240  
 : -300  
 Tolerance : + 0.50  
 Check  
 tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1180  
 Rack travel in mm : 13.15  
 Tolerance mm : + 0.05  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 104.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0  
 Speed



Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

2nd speed rpm : 750

Rack travel in mm : 5.05  
Tolerance mm : ± 0.25

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1180  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

RATED SPEED

control lever  
position degree : 97.0  
tolerance degree : ± 4.0

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1400

LOW IDLE

control lever  
position degree : 76.0  
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 750  
rack travel mm : 5.05  
Tolerance mm : ± 0.25

rack travel mm : 2.00

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1180  
rack travel mm : 13.15  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 13.15  
Tolerance mm : ± 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 13.15  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 500  
Pressure hPa : 500  
rack travel mm : 2.20  
Tolerance mm :  $\pm$  0.15  
Pressure hPa : 350  
rack travel mm : 1.10  
Tolerance mm :  $\pm$  0.05

rack travel mm : 5.05  
Tolerance mm :  $\pm$  0.25  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 750

H08

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.02.95  
Test oil : ISO 4113

Combination No. : 0400074961

Injection pump  
Pump designation : PES4M55C32ORS107-1  
EP type number : 0410054977

Governor  
Governor design. : RSF375/2250M18  
Governor no. : 0420021017

Cust. part No. :

---

Customer-spec. information  
Customer : MB-PKW  
Motor : OM616 (2.4 L)  
Power KW : 53.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413012

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test Lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0

H09

x Length mm : 600

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

---

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

---

## Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 375

Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

IDLE STAGE

Rack travel in mm : 6.00  
Tolerance mm : ± 0.15

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

---

RATED SPEED

control lever  
position degree : 50.0  
rack travel mm : 8.40  
Rated speed rpm : 2500  
rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 2950

---

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000  
CRT mm max. : 1.45

---

LOW IDLE

H10

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450  
rack travel mm : 4.90  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 770  
Tolerance 1/min : ± 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : > 11.00

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 6.10  
Rated speed rpm : 375

---

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 13.45  
Tolerance mm : ± 0.05

Rated speed rpm : 1800  
rack travel mm : 12.90  
Tolerance mm : ± 0.10

Rated speed rpm : 2200  
rack travel mm : 12.60  
Tolerance mm : ± 0.10

---

FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 1800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
 ALDA / ADA hPa : -  
 Rated speed rpm : 2200  
 Spreed  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 41.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 2.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0

---

#### HIGH IDLE

Rated speed rpm : 2500  
 rack travel mm : 8.40  
 Tolerance mm : ± 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 25.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 53.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0

---

#### LOW IDLE

Rated speed rpm : 375  
 rack travel mm : 6.10  
 Tolerance mm : ± 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 8.3

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 1.8  
 Spreed  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 1.5

---

#### CHECKING THE IDLE-SPEED AUXILIARY

degree : > 47.00  
 degree : < 30.00

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.02.95  
Test oil : ISO 4113

Combination No. : 0400074978

Injection pump  
Pump designation : PES4M50C320RS103  
EP type number : 0410054023

Governor  
Governor design. : RSF375/2250M19  
Governor no. : 0420021018

Cust. part No. :

Customer-spec. information

Customer : MB-PKW  
Motor : OM615 (2.0 L)  
Power KW : 44.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413012

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750003

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

H12

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 375

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 0.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP  
 WITH GOVERNOR

-----  
 IDLE STAGE

Rack travel in mm : 6.00  
 Tolerance mm : ± 0.15

-----  
 FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
 Ref. pressure  
 ALDA / ADA hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 33.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 0.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 2.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0

-----  
 RATED SPEED

control lever  
 position degree : 50.0  
 rack travel mm : 6.90  
 Rated speed rpm : 2500  
 rack travel mm : 0.50  
 Tolerance mm : ± 0.50  
 Rated speed rpm : 2950

-----  
 SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000  
 CRT mm max. : 1.45

-----  
 LOW IDLE

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450  
 rack travel mm : 5.20  
 Tolerance mm : ± 0.10

rack travel mm : 2.00  
 Rated speed rpm : 770  
 Tolerance 1/min : ± 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : > 12.00

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 6.50  
 Rated speed rpm : 375

-----  
 TORQUE CONTROL

Rated speed rpm : 1000  
 rack travel mm : 12.25  
 Tolerance mm : ± 0.05

Rated speed rpm : 1800  
 rack travel mm : 11.80  
 Tolerance mm : ± 0.10

Rated speed rpm : 2200  
 rack travel mm : 11.40  
 Tolerance mm : ± 0.10

-----  
 FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
 ALDA / ADA hPa : -  
 Rated speed rpm : 1800  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 33.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 2.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
 ALDA / ADA hPa : -  
 Rated speed rpm : 2200  
 Spreed  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 35.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 2.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 1.8  
 Spreed  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 1.5

---

CHECKING THE IDLE-SPEED AUXILIARY

degree : > 47.00  
 degree : < 30.00

---

HIGH IDLE

Rated speed rpm : 2500  
 rack travel mm : 6.90  
 Tolerance mm : ± 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 15.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 55.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0

---

LOW IDLE

Rated speed rpm : 375  
 rack travel mm : 6.50  
 Tolerance mm : ± 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 8.8



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.02.95  
Test oil : ISO 4113

Combination No. : 0400075991

Injection pump  
Pump designation : PES5M55C320RS108-1  
EP type number : 0410055992

Governor  
Governor design. : RSF350/2300M15  
Governor no. : 0420021014

Cust. part No. :

Customer-spec. information

Customer : MB-PKW  
Motor : OM617 (3.0 L)  
Power KW : 65.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413012

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1688901111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1680750014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

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REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

2nd speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

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IDLE STAGE

Rack travel in mm : 6.00  
Tolerance mm : +- 0.15

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FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 1.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

\_\_\_\_\_

RATED SPEED

control lever  
position degree : 50.0  
  
rack travel mm : 8.80  
Rated speed rpm : 2500  
  
rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 2950

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SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000  
  
CRT mm max. : 1.45

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LOW IDLE

control lever  
position degree : 11.0  
tolerance degree : +- 2.0

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450  
rack travel mm : 4.70  
Tolerance mm : +- 0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 770  
Tolerance 1/min : +- 50

Load pick-up

Rated speed rpm : 250  
  
CRT mm min. : > 10.00  
  
Rated speed rpm : 1000  
CRT mm max. : 1.45  
  
rack travel mm : 6.10  
Rated speed rpm : 750

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TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 13.45  
Tolerance mm : +- 0.05  
  
Rated speed rpm : 1800  
rack travel mm : 13.10  
Tolerance mm : +- 0.10  
  
Rated speed rpm : 2200  
rack travel mm : 12.60  
Tolerance mm : +- 0.10

\_\_\_\_\_

FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 1800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 2.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 2200  
Spreed  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 41.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

---

#### HIGH IDLE

Rated speed rpm : 2500  
rack travel mm : 8.80  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 6.10

Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.3  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.8  
Spreed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

---

#### CHECKING THE IDLE-SPEED AUXILIARY

degree : > 47.00  
degree : < 30.00

---

#### SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever  
position degree : 11.0  
tolerance degree : ± 2.0

control lever  
position degree : 50.0

Adjustment of the control-rod travel  
sensor

control lever  
position degree : 50.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.03.95  
Test oil : ISO 4113

Combination No. : 0400844095

Injection pump  
Pump designation : PES4A95D410RS2809  
EP type number : 0410894993

Governor  
Governor design. : RQV300...1400AB1065  
: -23L  
Governor no. : 0420212227

Cust. part No. :

---

Customer spec. information  
Customer : MB-NFZ  
Motor : OM 364  
Power KW : 65.0

---

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0681343009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test Lines : 1680750015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 1.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

---

BASIC SETTING

Rated speed rpm : 1400

---

Rack travel in mm : 9.95  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 65.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0  
 2nd speed rpm : 300  
 Rack travel in mm : 8.50  
 Tolerance mm : ± 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 10.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1450  
 Rack travel in mm : 16.50  
 Tolerance mm : ± 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 65.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 0.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 2.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

---

RATED SPEED

control lever  
 position degree : 115.0

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tolerance degree : ± 4.0  
 rack travel mm : 8.90  
 Rated speed rpm : 1455  
 Tolerance 1/min : ± 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1550  
 Tolerance 1/min : ± 15  
 rack travel mm : 0.50  
 Tolerance mm : ± 0.50  
 Rated speed rpm : 1670

---

LOW IDLE

control lever  
 position degree : 77.0  
 tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300  
 rack travel mm : 8.50  
 Tolerance mm : ± 0.10  
 Rated speed rpm : 100  
 CRT mm min. : > 9.60

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 625

---

TORQUE CONTROL

Rated speed rpm : 1400  
 rack travel mm : 9.95  
 Tolerance mm : ± 0.05  
 Rated speed rpm : 400  
 rack travel mm : 10.80  
 Tolerance mm : ± 0.10  
 Rated speed rpm : 670  
 rack travel mm : 10.60  
 Tolerance mm : ± 0.10  
 Rated speed rpm : 1060  
 rack travel mm : 10.25  
 Tolerance mm : ± 0.15

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 49.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 8.90  
Rated speed rpm : 1455  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.00  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 8.50  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.03.95  
Test oil : ISO 4113  
Combination No. : 0402046827  
Injection pump  
Pump designation : PES6P120A320RS3284  
EP type number : 0412026749  
Governor  
Governor design. : RQ275/1050PA999-3  
Governor no. : 0421801598  
Cust. part No. : CCEP5119A

Customer-spec. information  
Customer : RVI  
Motor : MIDR/PR 062045  
Power kW : 186.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2417413071  
Inlet press. bar : 2.5  
Test nozzle holder  
assembly : 1688901105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Lube oil : 1409918004  
Test lines : 1680750089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 700  
Rack travel in mm : 10.35  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00

Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

rack travel mm : -1.00

Rated speed rpm : 1128

Tolerance 1/min : ± 8

rack travel mm : -6.30

Rated speed rpm : 1205

Tolerance 1/min : ± 15

rack travel mm : -9.85

Tolerance mm : ± 0.55

Rated speed rpm : 1350

LOW IDLE

control lever  
position degree : 252.0

tolerance degree : ± 4.0

Testing:

Rated speed rpm : 275  
rack travel mm : -5.50  
Tolerance mm : ± 0.10

rack travel mm : -8.10  
Rated speed rpm : 340  
Tolerance 1/min : ± 20

Rated speed rpm : 200

CRT mm max. : < -4.00

TORQUE CONTROL

Rated speed rpm : 1050  
Tolerance mm : ± 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -2.20  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 360  
rack travel mm : -0.40  
Tolerance mm : ± 0.20

Pressure hPa : 200  
rack travel mm : -1.45  
Tolerance mm : ± 0.05

START CUT-OUT

Rated speed rpm : > 100

Check  
speed 1/min : > 80

Rated speed rpm : < 195

Check  
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS



Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 81.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1128  
Tolerance 1/min : ± 8

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.03.95  
Test oil : ISO 4113

Combination No. : 0402046830

Injection pump  
Pump designation : PES6P120A320RS3290  
EP type number : 0412026751

Governor  
Governor design. : RQ275/950PA999-4  
Governor no. : 0421801612

Cust. part No. : CCEP 5123A

Customer-spec. information

Customer : RVI  
Motor : MIDR/PRO62045  
Power KW : 151.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413071

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test Lines : 1680750089

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Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 19.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

BASIC SETTING

Rated speed rpm : 500

Rack travel in mm : 12.85  
 Tolerance mm :  $\pm$  0.05

---

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 142.0

---

Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

---

2nd speed rpm : 250

---

Rack travel in mm : -7.80  
 Tolerance mm :  $\pm$  0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 24.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 600  
 Rack travel in mm : 20.00  
 Tolerance mm :  $\pm$  0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 500  
 Aneroid pressure  
 hPa : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 142.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

rack travel mm : -1.00  
 Rated speed rpm : 1018  
 Tolerance 1/min :  $\pm$  8

rack travel mm : -8.80  
 Rated speed rpm : 1110  
 Tolerance 1/min :  $\pm$  15

rack travel mm : -12.35  
 Tolerance mm :  $\pm$  0.55  
 Rated speed rpm : 1250

LOW IDLE

Testing:

Rated speed rpm : 250  
 rack travel mm : -7.80  
 Tolerance mm :  $\pm$  0.10

rack travel mm : -10.85  
 Rated speed rpm : 335  
 Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200

CRT mm max. :  $<$  -6.80

TORQUE CONTROL

Rated speed rpm : 950  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
 rack travel mm : -4.00  
 Tolerance mm :  $\pm$  0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
 Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -1.90  
Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 320  
rack travel mm : -0.45  
Tolerance mm : + 0.15

Pressure hPa : 160  
rack travel mm : -1.45  
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 100  
Check speed 1/min : > 80  
Rated speed rpm : < 195  
Check speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1000  
Rated speed rpm : 950  
Del. quantity cm3/1000 strokes : 158.0  
Tolerance cm3/1000 strokes : + 3.0  
Check tolerance cm3/1000S. : + 6.0

Aneroid pressure hPa : 1000  
Rated speed rpm : 500  
Del. quantity cm3/1000 strokes : 79.0  
Tolerance cm3/1000 strokes : + 5.0  
Check tolerance cm3/1000S. : + 8.0

Aneroid pressure hPa : -  
Rated speed rpm : 500  
Del. quantity cm3/1000 strokes : 104.0  
Tolerance cm3/1000 strokes : + 1.0  
Check tolerance cm3/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1018  
Tolerance 1/min : + 8

STARTING FUEL DELIVERY

Del. quantity cm3/1000 strokes : 155.0  
Tolerance cm3/1000 strokes : + 15.0  
Check tolerance cm3/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 250  
rack travel mm : 7.80  
Tolerance mm : + 0.20  
Del. quantity cm3/1000 strokes : 24.0  
Tolerance cm3/1000 strokes : + 2.0  
Check tolerance cm3/1000S. : + 5.0  
Spread Tolerance cm3/1000 strokes : 8.0  
Check tolerance cm3/1000S. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.03.95  
Test oil : ISO 4113  
Combination No. : 0402646910  
Injection pump  
Pump designation : PE6P120A320RS7138  
: -10  
EP type number : 0412626922  
Governor  
Governor design. : RQV200...1100PA712  
: -5  
Governor no. : 0421813951  
Cust. part No. : 1318823

---

Customer-spec. information  
Customer : SCANIA  
Motor : DSC908

---

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
Test nozzle holde  
assembly : 1688901104  
Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5  
Test Lines : 1680750008  
Outside diameter : 6.0

H27

x inside diameter : 2.0  
x length mm : 600

---

REMARKS

Start-of-delivery setting with ROBO diaphragm.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

---

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

---

BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 13.15  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 250

Rack travel in mm : 5.30  
Tolerance mm : +- 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1130

Rack travel in mm : 16.50  
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

H28

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

RATED SPEED

control lever  
position degree : 63.0  
tolerance degree : +- 4.0

control lever  
position degree : 118.0  
tolerance degree : +- 4.0

rack travel mm : 12.10  
Rated speed rpm : 1145  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1305  
Tolerance 1/min : +- 15

rack travel mm : 7.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1400

LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : +- 4.0

control lever  
position degree : 9.0  
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 250  
rack travel mm : 4.60  
Tolerance mm : +- 0.10

Rated speed rpm : 150

CRT mm min. : > 5.80

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 250

TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.15  
Tolerance mm : ± 0.05

Rated speed rpm : 1100  
rack travel mm : 13.15  
Tolerance mm : ± 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.15  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.30  
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 480  
rack travel mm : 12.35  
Tolerance mm : ± 0.05

Pressure hPa : 220  
rack travel mm : 10.80  
Tolerance mm : ± 0.20

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 12.10  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.30  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

LOW IDLE

Rated speed rpm : 250  
rack travel mm : 5.30  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.07.94  
Test oil : ISO 4113

Combination No. : 0402646937

Injection pump  
Pump designation : PE6P120A72ORS7188  
: -100  
EP type number : 0412626925

Governor  
Governor design. : RQV200...950PA725-7  
Governor no. : 0421813803

Cust. part No. : 1333121

Customer-spec. information  
Customer : SCANIA  
Motor : DSC11 21

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 1417413025

Inlet press. bar : 2.5  
Tolerance bar : +- 0.1

Test nozzle holde  
assembly : 1688901104

Opening pressure  
bar : 251.5  
Tolerance bar : +- 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

Start-of-delivery setting with ROBO diaphragm.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 4.45  
Tolerance mm : +- 0.05

test only : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.75  
Tolerance mm : +- 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 250

Rack travel in mm : 4.70  
Tolerance mm : +- 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1150

Rack travel in mm : 9.50  
Tolerance mm : +- 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

J03

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

RATED SPEED

control lever  
position degree : 112.0  
tolerance degree : +- 4.0

control lever  
position degree : 60.0  
tolerance degree : +- 4.0

rack travel mm : 11.70  
Rated speed rpm : 995  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1120  
Tolerance 1/min : +- 15

rack travel mm : 7.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1250

LOW IDLE

control lever  
position degree : 10.0  
tolerance degree : +- 4.0

control lever  
position degree : 62.0  
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm : +- 0.10

Rated speed rpm : 150

CRT mm min. : > 6.00

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 275

TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 12.75  
Tolerance mm : + 0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.75  
Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.40  
Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 270  
rack travel mm : 11.00  
Tolerance mm : + 0.15

Pressure hPa : 440  
rack travel mm : 12.05  
Tolerance mm : + 0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

BREAKAWAY

Rack travel in mm : 11.70  
Rated speed rpm : 995  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.40  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

LOW IDLE

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.03.95  
Test oil : ISO 4113  
  
Combination No. : 0402746647  
  
Injection pump  
Pump designation : PES6P120A720RS7366  
EP type number : 0412726933  
  
Governor  
Governor design. : RQV275...1100PA1208K  
Governor no. : 0421815459

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8460.41.4000

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

J05

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 273.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 275

Rack travel in mm : 6.40  
Tolerance mm : + 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.75  
Tolerance mm : + 0.20

Rated speed rpm : 1155  
guide sleeve  
travel mm : 9.75  
Tolerance mm : + 0.15

Rated speed rpm : 791  
guide sleeve  
travel mm : 6.42  
Tolerance mm : + 0.25

Rated speed rpm : 460  
guide sleeve  
travel mm : 3.77  
Tolerance mm : + 0.25

Rated speed rpm : 1440  
guide sleeve  
travel mm : 13.50

J06

Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1310

Rack travel in mm : 10.00  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 273.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 117.0  
tolerance degree : + 4.0

rack travel mm : 11.70  
Rated speed rpm : 1145  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1250  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 275  
rack travel mm : 6.40  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 7.90

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 335

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.75  
Tolerance mm : + 0.05

Rated speed rpm : 800  
rack travel mm : 13.45  
Tolerance mm : + 0.10

Rated speed rpm : 650  
rack travel mm : 13.10  
Tolerance mm : + 0.10

Rated speed rpm : 500  
rack travel mm : 13.10  
Tolerance mm : + 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 800  
Pressure hPa : 1200  
rack travel mm : 13.40  
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 800

Pressure hPa : 290  
rack travel mm : 10.50  
Tolerance mm : + 0.20

Pressure hPa : 520  
rack travel mm : 12.50  
Tolerance mm : + 0.05

---

START CUT-OUT

Rated speed rpm : > 170  
Check  
speed 1/min : > 150  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 296.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 273.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

BREAKAWAY

Rack travel in mm : 11.70  
Rated speed rpm : 1145  
Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

LOW IDLE

Rated speed rpm : 275  
rack travel mm : 6.40  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.03.95  
Test oil : ISO 4113

Combination No. : 0402746909

Injection pump  
Pump designation : PES6P120A320RS7236  
EP type number : 0412726848

Governor  
Governor design. : RQV275...1000PA1001  
                  : -1  
Governor no. : 0421813936

Cust. part No. : CCEP 5116A PROJ.171

Customer-spec. information

Customer : RVI  
Motor : MIDR 063540 J/3  
Power KW : 306.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413071

Inlet press. bar : 2.5

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750089

J09

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 13.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.80  
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 310.0
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
<hr/>	
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0
<hr/>	
2nd speed rpm	: 300
<hr/>	
Rack travel in mm	: -8.60
Tolerance mm	: ± 0.20
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 31.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 5.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1150
<hr/>	
Rack travel in mm	: 16.50
Tolerance mm	: ± 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure	
hPa	: 1000
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 310.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0

Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

---

RATED SPEED

control lever	
position degree	: 302.0
tolerance degree	: ± 4.0
<hr/>	
rack travel mm	: -1.00
Rated speed rpm	: 1070
Tolerance 1/min	: ± 5
<hr/>	
rack travel mm	: -9.70
Rated speed rpm	: 1210
Tolerance 1/min	: ± 15
<hr/>	
rack travel mm	: -13.25
Tolerance mm	: ± 0.55
Rated speed rpm	: 1750

---

LOW IDLE

control lever	
position degree	: 246.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 300
rack travel mm	: -8.60
Tolerance mm	: ± 0.10

Rated speed rpm	: 200
-----------------	-------

CRT mm max.	: < -7.20
-------------	-----------

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm	: 370
-----------------	-------

---

TORQUE CONTROL

Rated speed rpm	: 1000
Tolerance mm	: ± 0.10

Rated speed rpm	: 500
rack travel mm	: -5.50
Tolerance mm	: ± 0.10



---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -5.00  
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 240  
rack travel mm : -3.80  
Tolerance mm : ± 0.20

Pressure hPa : 600  
rack travel mm : -0.95  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 225  
Check  
speed 1/min : < 245

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 287.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1070  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : -8.60  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.03.95  
Test oil : ISO 4113  
Combination No. : 0402746931  
Injection pump  
Pump designation : PES6P120A32ORS7236  
EP type number : 0412726848  
Governor  
Governor design. : RQV275...1000PA1001  
: -2  
Governor no. : 0421813989  
Cust. part No. : CCEP5128A 66-194

Customer-spec. information  
Customer : RVI  
Motor : MIDR 063540 N/3  
Power KW : 283.0

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2417413071  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
Test nozzle holde  
assembly : 1688901105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Lube oil : 1409918004  
Test lines : 1680750089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 19.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : -7.25

Tolerance mm :  $\pm$  0.30

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Rated speed rpm : 600

---

Rack travel in mm : 13.35  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 300

Rack travel in mm : -8.20  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1190

Rack travel in mm : 13.20  
Tolerance mm :  $\pm$  1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

RATED SPEED

control lever  
position degree : 301.0  
tolerance degree :  $\pm$  4.0

rack travel mm : -1.00  
Rated speed rpm : 1070  
Tolerance 1/min :  $\pm$  5

rack travel mm : -9.30  
Rated speed rpm : 1205  
Tolerance 1/min :  $\pm$  15

rack travel mm : -12.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 247.0  
tolerance degree :  $\pm$  4.0

Testing:

Rated speed rpm : 300  
rack travel mm : -8.20  
Tolerance mm : ± 0.10

Rated speed rpm : 200  
CRT mm max. : < -6.80

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 365

---

TORQUE CONTROL

Rated speed rpm : 1000  
Tolerance mm : ± 0.10

Rated speed rpm : 600  
rack travel mm : -4.50  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -3.80  
Tolerance mm : ± 0.30

Rated speed rpm : 500

Pressure hPa : 240  
rack travel mm : -2.60  
Tolerance mm : ± 0.20

Pressure hPa : 480  
rack travel mm : -0.75  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 195  
Check  
speed 1/min : < 215

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---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 7.0

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1070

Tolerance 1/min : + 5

---

STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 14.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : -8.20  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.03.95  
Test oil : ISO 4113  
  
Combination No. : 0402746949  
  
Injection pump  
Pump designation : PES6P120A72ORS7224  
: -2  
EP type number : 0412726893  
  
Governor  
Governor design. : RQV275...1100PA975  
: -3K  
Governor no. : 0421815350

Cust. part No. :

---

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8460.41.406

---

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
  
Overflow valve : 1417413076  
  
Inlet press. bar : 2.5  
Tolerance bar : +- 0.1  
  
Overflow quantity  
min. l/h : 140  
Tolerance l/h : +- 20.0  
  
Test nozzle holde  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1680750089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0  
  
Prestroke mm : 5.15  
Tolerance mm : +- 0.05  
  
test only : +- 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : +- 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.30  
Check  
tolerance °NW : +- 0.75

---

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

---

BASIC SETTING

Rated speed rpm : 1100  
  
Rack travel in mm : 12.75  
Tolerance mm : +- 0.05

---

Del. quantity  
cm3/1000 strokes : 218.0

---

Tolerance  
cm3/1000 strokes : +- 1.0

---

Check tolerance  
cm3/1000S. : +- 4.0

---

Speed  
Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

---

2nd speed rpm : 275

Rack travel in mm : 5.30  
Tolerance mm : +- 0.20

Del. quantity  
cm3/1000 strokes : 30.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0

Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.90  
Tolerance mm : +- 0.20

Rated speed rpm : 1145  
guide sleeve  
travel mm : 10.40  
Tolerance mm : +- 0.15

Rated speed rpm : 750  
guide sleeve  
travel mm : 6.10  
Tolerance mm : +- 0.25

Rated speed rpm : 430  
guide sleeve  
travel mm : 3.60  
Tolerance mm : +- 0.25

Rated speed rpm : 1360

guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1235

Rack travel in mm : 10.30  
Tolerance mm : +- 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm3/1000 strokes : 218.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0  
Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

RATED SPEED

control lever  
position degree : 120.0  
tolerance degree : +- 4.0

rack travel mm : 11.70  
Rated speed rpm : 1160  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1245  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1350

LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 275  
rack travel mm : 5.30  
Tolerance mm : ± 0.10

Rated speed rpm : 100  
CRT mm min. : > 7.00

---

CONTINUOUS-ACTION CONTROL

Rated speed rpm : 335

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.75  
Tolerance mm : ± 0.05

Rated speed rpm : 900  
rack travel mm : 12.75  
Tolerance mm : ± 0.10

Rated speed rpm : 650  
rack travel mm : 12.00  
Tolerance mm : ± 0.10

Rated speed rpm : 300  
rack travel mm : 11.20  
Tolerance mm : ± 0.20

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 900  
Pressure hPa : 1200  
rack travel mm : 12.75  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 900  
rack travel mm : 7.40  
Tolerance mm : ± 0.20

Rated speed rpm : 900

Pressure hPa : 380  
rack travel mm : 9.00  
Tolerance mm : ± 0.20

Pressure hPa : 710  
rack travel mm : 11.50  
Tolerance mm : ± 0.05

---

START CUT-OUT

Rated speed rpm : > 170  
Check  
speed 1/min : > 150  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 231.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 238.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

BREAKAWAY

Rack travel in mm : 11.70  
Rated speed rpm : 1160  
Tolerance 1/min : ± 5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100



Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

LOW IDLE

Rated speed rpm : 275  
rack travel mm : 5.30  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.03.95  
Test oil : ISO 4113

Combination No. : 0402746950

Injection pump  
Pump designation : PES6P120A72ORS7224  
: -2  
EP type number : 0412726893

Governor  
Governor design. : RQV275...1100PA975  
: -4K  
Governor no. : 0421815351

Cust. part No. :

---

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8460.41.320

---

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413076

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

---

REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

---

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

---

BASIC SETTING

Rated speed rpm : 1100

---

Rack travel in mm : 11.45  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 192.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

2nd speed rpm : 275

Rack travel in mm : 5.70  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.90  
Tolerance mm : ± 0.20

Rated speed rpm : 1145  
guide sleeve  
travel mm : 10.40  
Tolerance mm : ± 0.15

Rated speed rpm : 750  
guide sleeve  
travel mm : 6.10  
Tolerance mm : ± 0.25

Rated speed rpm : 430  
guide sleeve  
travel mm : 3.60  
Tolerance mm : ± 0.25

Rated speed rpm : 1360

guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1235

Rack travel in mm : 10.30  
Tolerance mm : ± 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 192.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

RATED SPEED

control lever  
position degree : 120.0  
tolerance degree : ± 4.0

rack travel mm : 10.40  
Rated speed rpm : 1170  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

### Testing:

Rated speed rpm : 275  
rack travel mm : 5.70  
Tolerance mm : ± 0.10

Rated speed rpm : 100  
CRT mm min. : > 7.20

---

### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 335

---

### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.45  
Tolerance mm : ± 0.05

Rated speed rpm : 900  
rack travel mm : 11.10  
Tolerance mm : ± 0.10

Rated speed rpm : 650  
rack travel mm : 10.20  
Tolerance mm : ± 0.15

Rated speed rpm : 400  
rack travel mm : 9.60  
Tolerance mm : ± 0.20

---

### ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 11.45  
Tolerance mm : ± 0.05

### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 7.80  
Tolerance mm : ± 0.20

Rated speed rpm : 1100

Pressure hPa : 340  
rack travel mm : 8.70  
Tolerance mm : ± 0.20

Pressure hPa : 570  
rack travel mm : 10.55  
Tolerance mm : ± 0.05

---

### START CUT-OUT

Rated speed rpm : > 170  
Check  
speed 1/min : > 150  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 189.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

### BREAKAWAY

Rack travel in mm : 10.40  
Rated speed rpm : 1170  
Tolerance 1/min : ± 5

---

### STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 19.0

---

LOW IDLE

Rated speed rpm : 275  
rack travel mm : 5.70  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.03.95  
Test oil : ISO 4113

Combination No. : 0403274005

Injection pump  
Pump designation : PES4MW100/72ORS1519  
: -2

EP type number : 0413204017

Governor  
Governor design. : RSV350...1200MWOA356  
Governor no. : 0420085231

Cust. part No. : 0250740802

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364LA  
Power KW : 103.0

---

TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

---

REMARKS

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

Test hydr. locking device for starting with 800...1200 hPa air pressure.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

BEGINNING OF DELIVERY

Test pressure bar : 51.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

---

BASIC SETTING

Rated speed rpm : 1200

---

Rack travel in mm : 13.90  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0

---

Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0  


---

 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  


---

 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0  
 2nd speed rpm : 350  
 Rack travel in mm : 3.90  
 Tolerance mm : ± 0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
 position degree : - 3  
 Rated speed rpm : 800  
 Rack travel in mm : 0.50  
 Tolerance mm : ± 0.20  
 governor spring  
 pre-tension  
 click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
 Aneroid pressure  
 hPa : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 126.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
 cm<sup>3</sup>/1000S. : ± 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

RATED SPEED

control lever  
 position degree : 108.0  
 tolerance degree : ± 4.0  
 rack travel mm : 1.00  
 Tolerance mm : ± 0.70  
 Rated speed rpm : 1450  
 rack travel mm : 4.00  
 Rated speed rpm : 1355

LOW IDLE

Setting point w/out bumper spring  
 Rated speed rpm : 350  
 rack travel mm : 3.90  
 Testing:  
 Rated speed rpm : 100  
 CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1200  
 rack travel mm : 13.90  
 Tolerance mm : ± 0.05  
 Rated speed rpm : 750  
 rack travel mm : 13.90  
 Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
 Pressure hPa : 1000  
 rack travel mm : 13.90  
 Tolerance mm : ± 0.10

## MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 600  
rack travel mm : 2.00  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 350  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.10

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 67.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

## LOW IDLE

Rated speed rpm : 350  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA 1,7 A
Edition : 18.02.91
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE3/10F2100L353
Type number : 0 460 403 013
Customer Part-No. :

Customer-specific information
Customer : VM

Engine : HR 392 SHJ

TEST BENCH REQUIREMENTS

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 000

Opening
Pressure> bar: 147.00...150.00

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: 0,4
> (from BDC): 0,02(0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 2.10...2.50
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 4.20...4.80
Shutoff

electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 65.00...66.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 3.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm3/
> 1000S.: 46.10...47.10
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 460
Del. quantity cm3/
> 1000S.: 8.50...12.50
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.0
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 34.00...40.00

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...61.00
mind> 1000S.: 35.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: 1000
Inj.-qty. cm3/
difference> 1000S.: 10.00...12.00
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1500
Charge press hPa: 1000
TD-travel

difference> mm: 0.30...0.50  
Shutoff  
electromagnet>Volt: 12  
SP press.-dif.measurement

1.Speed 1/min: 1500  
Charge press hPa: 1000  
Supply pump  
pressure>  
difference> bar: 0.10...0.30  
Shutoff  
electromagnet Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100  
Charge press hPa: 1000  
TD travel mm: 6.10...6.90  
> mm: (5.80...7.20)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 2.10...2.50  
> mm: (1.60...3.00)

Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 1900  
Charge press. hPa: 1000  
TD travel mm: 5.40...6.20  
> mm: (5.10...6.50)

Shutoff  
electromagnet>Volt: 12  
6th speed 1/min: 1500  
Charge press. hPa: 1000  
TD travel mm: 3.90...4.70  
> mm: (3.60...5.00)

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 7.90...8.50  
Shutoff

electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.20...4.80  
Shutoff

electromagnet>Volt: 12  
3rd speed 1/min: 600  
Supply-pump  
pressure> bar: 2.30...2.90

Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...83.40  
quantity> cm<sup>3</sup>/10s: (26.70...98.40)  
2nd speed 1/min: 2100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750\*  
Charge-air pressure-setting  
point> hPa: 350  
LDA-stroke mm: 6.2  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 55.70...56.50  
> 1000S.: (53.50...58.50)

3rd speed 1/min: 2500  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...6.00  
> 1000S.: -

5th speed 1/min: 2300  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 34.00...40.00  
> 1000S.: (33.00...41.00)

9th speed 1/min: 2100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 55.20...57.60  
> 1000S.: (54.20...58.80)

11th speed 1/min: 750  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 60.50...63.50  
> 1000S.: (59.50...64.50)

12th speed 1/min: 1500  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 65.00...66.00  
> 1000S.: (63.50...67.50)

18th speed 1/min: 750  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 46.10...47.10  
> 1000S.: (44.10...49.10)  
20th speed 1/min: 600  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 42.00...44.00  
> 1000S.: (40.00...46.00)

Electr. shutoff:

1st speed 1/min: 460  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 460  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 8.50...12.50  
> 1000S.: (6.50...14.50)

Dispersion cm<sup>3</sup>/: 3.0  
> 1000S.: (3.0)

2nd speed 1/min: 500

Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 4.00...10.00  
> 1000S.: (2.00...12.00)

3rd speed 1/min: 600

Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...7.00  
> 1000S.: (0.00...7.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

2nd speed 1/min: 1500  
Charge press. hPa: 1000  
Inj.-qty. cm<sup>3</sup>/: 10.00...12.00  
difference> 1000S.: (10.00...12.00)

Shutoff

electromagnet Volt: 12  
4th speed 1/min: 1500  
Charge press. hPa: 1000  
Inj.-qty. cm<sup>3</sup>/: 15.00...21.00  
difference> 1000S.: (15.00...21.00)

Shutoff

electromagnet>Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1st speed 1/min: -  
2nd speed 1/min: 1500  
Charge press. hPa: 1000  
TD-travel : 0.30...0.50  
difference> mm: (0.30...0.50)

Shutoff

electromagnet>Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: -

2nd speed 1/min: 1500

Charge press. hPa: 1000

Supply pump-

pressure > : 0.10...0.30

difference> bar: (0.10...0.30)

Shutoff

electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 350

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 42.00...68.00

> 1000S.: (42.00...68.00)

4th speed 1/min: 100

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 35.00...61.00

> 1000S.: (35.00...61.00)

Shutoff electromagnet:

Cut-in

>min voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5,6...6,0

MS mm: 0,6...1,0

SVS max. mm: 0,8

LDA stroke mm: 6,2

Remarks:

: ..12.  
: 50 (6.50...14.50) 3.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 2,5 D  
Edition : 18.02.91  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE3/10F1100R276-3  
Type number : 0 460 403 014  
Customer Part-No. : 1 967 077 C1

Customer-specific information  
Customer : CASE

Engine : D155/440

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 020

Opening  
Pressure> bar: 172.00...175.00

Perforated-plate  
diameter> mm: 0.6

Test inj. tubing : 1 688 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Start of delivery block  
Piston stroke mm: 1,0  
> mm: 0,98...1,02  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800

Setting value mm: 2.20...2.60

Supply-pump pressure

Speed 1/min: 800  
Setting value bar: 4.00...4.60

Full-load del. w/out charge press.:

Speed 1/min: 800  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 61.00...62.00  
Dispersion cm<sup>3</sup>/: 2,5  
> 1000S.: (3.5)

Low-idle speed regulation

Speed 1/min: 350  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 13.00...17.00  
Del. quantity cm<sup>3</sup>/: 2.5  
> 1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1150  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 41.00...47.00

Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 75.00...125.00  
mind> 1000S.: 75.00

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050  
TD travel mm: 3.30...4.10  
> mm: (3.00...4.40)  
3rd speed 1/min: 800  
TD travel mm: 1.90...2.30  
> mm: (1.40...2.80)  
4th speed 1/min: 600  
TD travel mm: 0.30...1.10  
> mm: (0.00...1.40)

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Supply-pump  
pressure> bar: 2.90...3.50  
2nd speed 1/min: 800  
Supply-pump  
pressure> bar: 4.00...4.60  
3rd speed 1/min: 1050  
Supply-pump

pressure> bar: 4.80...5.40  
Overflow quantity at overflow valve:  
1st speed 1/min: 500  
Overflow : 41.70...83.40  
quantity> cm3/10s: (26.70...98.40)  
2nd speed 1/min: 1050  
Overflow : 55.60...139.00  
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1250  
Del. quantity cm3/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
3rd speed 1/min: 1230  
Del. quantity cm3/: 0.00...10.00  
> 1000s.: (0.00...10.00)  
4th speed 1/min: 1180  
Del. quantity cm3/: 10.00...40.00  
> 1000s.: (10.00...40.00)  
5th speed 1/min: 1150  
Del. quantity cm3/: 41.00...47.00  
> 1000s.: (39.50...48.50)  
9th speed 1/min: 1050  
Del. quantity cm3/: 60.50...63.50  
> 1000s.: (59.50...64.50)  
12th speed 1/min: 800  
Del. quantity cm3/: 61.00...62.00  
> 1000s.: (59.20...63.80)  
20th speed 1/min: 500  
Del. quantity cm3/: 57.00...61.00  
> 1000s.: (56.00...62.00)

Mech. shutoff:

1st speed 1/min: 1050  
Del. quantity cm3/: 0.00...3.00  
> 1000s.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 350  
Del. quantity cm3/: 13.00...17.00  
> 1000s.: (11.00...19.00)  
Dispersion cm3/: 2.5  
> 1000s.: (3.5)  
2nd speed 1/min: 450  
Del. quantity cm3/: 0.00...4.00  
> 1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 300  
Del. quantity cm3/: 80.00...110.00  
> 1000s.: (80.00...110.00)

2nd speed 1/min: 400  
Del. quantity cm3/: 60.00...80.00  
> 1000s.: (60.00...80.00)  
4th speed 1/min: 100  
Del. quantity cm3/: 75.00...125.00  
> 1000s.: (75.00...125.00)

Mounting and assembly dimensions:

Designation

K mm: 3,2...3,4  
KF mm: 5,1...5,3  
MS mm: 1,1...1,5  
SVS max. mm: 4,9

Remarks:

: ...17  
: .00(11.00...19.00)2.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA  
Edition : 03.12.92  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE3/10F1500L483  
Type number : 0 460 403 016  
Customer Part-No. :

Customer-specific information  
Customer : VM

Engine : HR 394 H

Power KW: 39

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 022

Opening  
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200  
Setting value mm: 2.50...2.90  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200  
Setting value bar: 5.30...5.90  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Dispersion cm<sup>3</sup>/: 3.5  
> 1000S.: (3.5)

Full-load del. w/out charge press.:

Speed 1/min: 1200  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 44.00...45.00  
Shutoff  
electromagnet>Volt: 12.0  
Dispersion cm<sup>3</sup>/: 3.5  
> 1000S.: (3.5)

Low-idle speed regulation

Speed 1/min: 460  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 10.50...14.50  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 3.5  
> 1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1620  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 21.00...27.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 60.00...100.00  
mind> 1000S.: 60.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1200  
Inj.-qty. cm<sup>3</sup>/  
difference> 1000S.: 15.00...17.00 #  
Shutoff  
electromagnet>Volt: 12  
SP press.-dif.measurement

1.Speed 1/min: 1200  
Supply pump

pressure>  
difference> bar: 0.10...0.30 #  
Shutoff  
electromagnet Volt: 12.0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1500  
TD travel mm: 3.60...4.40  
> mm: (3.30...4.70)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1200  
TD travel mm: 2.50...2.9G  
> mm: (2.00...3.40)  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1000  
TD travel mm: 1.30...2.10  
> mm: (1.00...2.40)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

2nd speed 1/min: 600  
Supply-pump  
pressure> bar: 2.80...3.40  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1200  
Supply-pump  
pressure> bar: 5.30...5.90  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1500  
Supply-pump  
pressure> bar: 6.60...7.20  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...83.40  
quantity> cm3/10s: (26.70...98.40)  
2nd speed 1/min: 1500  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.50...138.80  
quantity> cm3/10s: (40.50...153.80)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1700  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
5th speed 1/min: 1620  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 21.00...27.00  
> 1000S.: (18.00...30.00)  
8th speed 1/min: 1550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 37.00...47.00  
> 1000S.: (36.00...48.00)  
9th speed 1/min: 1500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 43.50...46.50  
> 1000S.: (42.00...48.00)  
12th speed 1/min: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 44.00...45.00  
> 1000S.: (42.00...47.00)  
20th speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 45.50...48.50  
> 1000S.: (44.00...50.00)

Electr. shutoff:

1st speed 1/min: 400  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 460  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 10.50...14.50  
> 1000S.: (8.50...16.50)  
Dispersion cm3/: 3.5  
> 1000S.: (3.5)  
2nd speed 1/min: 650  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
3rd speed 1/min: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 2.00...8.00  
> 1000S.: (1.00...9.00)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1200  
Inj.-qty. cm<sup>3</sup>/ : 18.0...26.0 '  
difference> 1000s.: -  
Shutoff  
electromagnet>Volt: 12

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1200  
TD-travel : 0.80...1.00 '  
difference> mm: -  
Shutoff  
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 65.00...95.00  
> 1000s.: (65.00...95.00)

2nd speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 35.00...55.00  
> 1000s.: (35.00...55.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 60.00...100.00  
> 1000s.: (60.00...100.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.8...6.2
MS	mm: 0.6...1.0
SVS max.	mm: 2.8
Ya	mm: 38.2 ±2
Yb	mm: 55.5 ±4.1

Remarks:

: ...14  
: .50(8.50...16.50) 3.



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA
Edition : 09.07.92
Calibrating oil : ISO-4113
Injection pump : VE3/10F1600L483
Type number : 0 460 403 016
Customer Part-No. :

Customer-specific information
Customer : VM

Engine : HR 394 H

Power KW: 39

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40...48
Electronically> : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 2.50...2.90
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Setting value bar: 5.30...5.90
Shutoff

electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Del. quantity cm3/
> 1000S.: 45.50...46.50

Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 3.5
> 1000S.: (3.5)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
> 1000S.: 10.50...14.50

Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.5
> 1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1620
Del. quantity cm3/
> 1000S.: 21.00...27.00

Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...100.00
mind> 1000S.: 60.00

Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200
Charge press hPa: 12
Inj.-qty. cm3/
difference> 1000S.: -18.00...26.00\*

Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1200
TD-travel
difference> mm: -0.80...1.00\*

Shutoff
electromagnet>Volt: 12
SP press.-dif.measurement

1.Speed 1/min: 1200
Supply pump
pressure>
difference> bar: -0.10...0.30#

Shutoff  
electromagnet Volt: 12  
  
Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1500  
TD travel mm: 3.60...4.40  
> mm: (3.30...4.70)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1200  
TD travel mm: 2.50...2.90  
> mm: (2.00...3.40)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1000  
TD travel mm: 1.30...2.10  
> mm: (1.00...2.40)

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600  
Supply-pump  
pressure> bar: 2.80...3.40

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1200  
Supply-pump  
pressure> bar: 5.30...5.90

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1500  
Supply-pump  
pressure> bar: 6.60...7.20

Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...83.40  
quantity> cm<sup>3</sup>/10s: (26.70...98.40)

2nd speed 1/min: 1500  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1700  
Shutoff

electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
5th speed 1/min: 1620

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 21.00...27.00  
> 1000s.: (18.00...30.00)  
8th speed 1/min: 1550

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 37.00...47.00  
> 1000s.: (36.00...48.00)  
9th speed 1/min: 1500

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 44.00...47.00  
> 1000s.: (42.50...48.50)  
12th speed 1/min: 1200

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 45.50...46.50  
> 1000s.: (43.50...48.50)  
20th speed 1/min: 600

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 46.00...49.00  
> 1000s.: (44.50...50.50)

Electr. shutoff:

1st speed 1/min: 400  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 10.50...14.50  
> 1000s.: (8.50...16.50)

Dispersion cm<sup>3</sup>/: 3.5  
> 1000s.: (3.5)  
2nd speed 1/min: 550  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
3rd speed 1/min: 440  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 2.00...8.00  
> 1000s.: (1.00...9.00)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1200  
Inj.-qty. cm3/ : -15.0..17.0#  
difference> 1000S.: -

Shutoff  
electromagnet>Volt: 12

3rd speed 1/min: 1200  
Inj.-qty. cm3/ : -18.0..26.0\*  
difference> 1000S.: -

Shutoff  
electromagnet>Volt: 12

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):

1st speed 1/min: 1200  
TD-travel : -0.80...1.00\*  
difference> mm: -

Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):  
1st speed 1/min: 1200  
Supply pump-  
pressure > : -0.10...0.30#  
difference> bar: -

Shutoff  
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 65.00...95.00  
> 1000S.: (65.00...95.00)

2nd speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 35.00...55.00  
> 1000S.: (35.00...55.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 60.00...100.00  
> 1000S.: (60.00...100.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4  
KF mm: 5.8...6.2  
MS mm: 0.6...1.0

K09

Ya mm: 37.2...39.2  
Yb mm: 51.5...59.7

Remarks:

: ...14  
: .50(8.50...16.50) 3.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA  
Edition : 02.06.92  
replaces : 07.84  
Calibrating oil : ISO4113

Injection pump : VE4/10F1900L106  
Type number : 0 460 404 026

Customer-specific information  
Customer : VM MOTORI

Engine : HR 492 HT9

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40...48  
Electronically> : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 1600  
Charge press. hPa: 750  
Setting value mm: 5.10...5.50

## Supply-pump pressure

Speed 1/min: 1600  
Charge press hPa: 750  
Setting value bar: 5.50...6.10

## Full-load del. with charge press.:

Speed 1/min: 1600  
Charge press. hPa: 750  
Del. quantity cm3/  
> 1000S.: 47.00...48.00  
Dispersion cm3/: 3.0  
> 1000S.: -

## Full-load del. w/out charge press.:

Speed 1/min: 600  
Del. quantity cm3/  
> 1000S.: 32.00...35.00

## Low-idle speed regulation

Speed 1/min: 350  
Charge press hPa: -  
Del. quantity cm3/  
> 1000S.: 16.00...20.00  
Del. quantity cm3/: 2.5  
> 1000S.: -

## Full-load speed regulation

Speed 1/min: 1900  
Charge press hPa: 750  
Del. quantity cm3/  
> 1000S.: 43.50...46.50

## Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm3/: -  
mind> 1000S.: 65.00

## Inspection-pump test specifications Test specifications in parentheses

## Timing-device characteristic:

1st speed 1/min: 1000  
Charge press hPa: 750  
TD travel mm: 1.00...1.80  
> mm: (0.70...2.10)  
2nd speed 1/min: 1600  
Charge press hPa: 750  
TD travel mm: 5.10...5.50  
> mm: (4.60...6.00)  
3rd speed 1/min: 1900  
Charge press hPa: 750  
TD travel mm: 6.70...7.50  
> mm: (6.40...7.80)

## Supply-pump pressure characteristic:

1st speed 1/min: 400

Charge press. hPa: 750  
Supply-pump  
pressure> bar: 1.50...2.10  
2nd speed 1/min: 1600  
Charge press. hPa: 750  
Supply-pump  
pressure> bar: 5.50...6.10  
3rd speed 1/min: 1900  
Charge press. hPa: 750  
Supply-pump  
pressure> bar: 6.80...7.40

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Overflow : 55.50...111.10  
quantity> cm3/10s: (40.50...126.10)  
2nd speed 1/min: 1900  
Overflow : 55.50...111.10  
quantity> cm3/10s: (40.50...126.10)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750  
Charge-air pressure-setting  
point> hPa: 300  
LDA-stroke mm: 4.2  
Del. quantity cm3/: 41.50...44.50  
> 1000S.: (40.00...46.00)  
2nd speed 1/min: 2100  
Charge press. hPa: 750  
Del. quantity cm3/: ...1.00  
> 1000S.: -  
3rd speed 1/min: 2050  
Charge press. hPa: 750  
Del. quantity cm3/: 2.00...  
> 1000S.: -  
4th speed 1/min: 2030  
Charge press. hPa: 750  
Del. quantity cm3/: 17.00...23.00  
> 1000S.: (16.00...24.00)  
5th speed 1/min: 1900  
Charge press. hPa: 750  
Del. quantity cm3/: 43.50...46.50  
> 1000S.: (41.00...49.00)  
6th speed 1/min: 1600  
Charge press. hPa: -  
Del. quantity cm3/: 31.00...34.00  
> 1000S.: (29.80...35.20)  
7th speed 1/min: 1600  
Charge press. hPa: 750  
Del. quantity cm3/: 47.00...48.00  
> 1000S.: (44.80...50.20)  
8th speed 1/min: 600  
Charge press. hPa: -  
Del. quantity cm3/: 32.00...35.00  
> 1000S.: (30.50...36.50)

Mech. shutoff:

1st speed 1/min: 1900

Idle delivery:

1st speed 1/min: 350  
Del. quantity cm3/: 16.00...20.00  
> 1000S.: 14.00...22.00  
Dispersion cm3/: 2.5  
> 1000S.: -  
2nd speed 1/min: 430  
Del. quantity cm3/: 2.60...  
> 1000S.: -  
3rd speed 1/min: 500  
Del. quantity cm3/: ...1.00  
> 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 350  
Del. quantity cm3/: 48.00...  
> 1000S.: -

2nd speed 1/min: 450  
Del. quantity cm3/: ...47.50

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.2...3.4  
KF mm: 5.7...6.0  
MS mm: 1.4...1.6  
SVS max. mm: 3.6  
XK mm: 20.2...22.2  
XL mm: 14.2...17.6  
Ya mm: 37.2...39.2  
Yb mm: 55.7...63.5

Remarks: : .0014.00...22.00 2.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA 2,2 D  
Edition : 18.02.91  
replaces : 09.11.89  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/10F2100L168-1  
Type number : 0 460 404 042  
Customer Part-No. :

Customer-specific information  
Customer : VM

Engine : HR 492 HJ

TEST BENCH REQUIREMENTS

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000  
Charge press. hPa: 800  
Setting value mm: 1.80...2.20  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1000  
Charge press hPa: 800  
Setting value bar: 3.10...3.70  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500  
Charge press. hPa: 800  
Del. quantity cm3/  
> 1000S.: 60.50...61.50  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 3.0  
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600  
Del. quantity cm3/  
> 1000S.: 40.50...41.50  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 400  
Del. quantity cm3/  
> 1000S.: 13.00...17.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.0  
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2300  
Charge press hPa: 800  
Del. quantity cm3/  
> 1000S.: 27.00...33.00

Start:

Speed 1/min: 100  
Del. quantity cm3/: 37.00...67.00  
mind> 1000S.: 37.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1500  
Inj.-qty. cm3/  
difference> 1000S.: 8.00...14.00  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1500  
TD-travel  
difference> mm: 0.90...1.10  
Shutoff  
electromagnet>Volt: 12  
SP press.-dif.measurement

1.Speed 1/min: 1500  
Supply pump  
pressure>  
difference> bar: 0,1...0,3  
Shutoff  
electromagnet Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100  
Charge press hPa: 800  
TD travel mm: 7.60...8.40  
> mm: (7.30...8.70)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press hPa: 800  
TD travel mm: 1.80...2.20  
> mm: (1.30...2.70)

Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 1500  
Charge press. hPa: 800  
TD travel mm: 4.40...5.20  
> mm: (4.10...5.50)

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 6.90...7.50  
Shutoff  
electromagnet>Volt: 12

2nd speed 1/min: 1000  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 3.10...3.70  
Shutoff  
electromagnet>Volt: 12

3rd speed 1/min: 600  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 1.80...2.40  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

K13

1st speed 1/min: 600  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...83.40  
quantity> cm<sup>3</sup>/10s: (26.70...98.40)  
2nd speed 1/min: 2100  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700\*  
Charge-air pressure-setting  
point> hPa: 400  
LDA-stroke mm: 6,1  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 52.00...53.00  
> 1000s.: (50.00...55.00)

3rd speed 1/min: 2450  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 1.00...9.00  
> 1000s.: (0.50...9.50)

5th speed 1/min: 2300  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 27.00...33.00  
> 1000s.: (26.00...34.00)

9th speed 1/min: 2100  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 52.50...55.50  
> 1000s.: (51.00...57.00)

12th speed 1/min: 1500  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 60.50...61.50  
> 1000s.: (59.00...63.00)

18th speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 40.50...41.50  
> 1000s.: (38.50...43.50)

20th speed 1/min: 600  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 63.00...66.00  
> 1000s.: (61.50...67.50)

Electr. shutoff:

1st speed 1/min: 400  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 13.00...17.00  
> 1000S.: (10.00...20.00)  
Dispersion cm3/: 3.0  
> 1000S.: (3.0)  
2nd speed 1/min: 450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 2.50...8.50  
> 1000S.: (0.50...10.50)  
4th speed 1/min: 600  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...2.00  
> 1000S.: (0.00...2.00)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1500  
Inj.-qty. cm3/ : 3.00...5.00  
difference> 1000S.: -  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1500  
3rd speed 1/min: 1500  
Inj.-qty. cm3/: 8.00...14.00  
difference> 1000S.: (8.00...14.00)  
Shutoff  
electromagnet>Volt: 12

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):

1st speed 1/min: 1500  
TD-travel : 0.90...1.10  
difference> mm: (0.90...1.10)  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):  
1st speed 1/min: 1500  
Supply pump-  
pressure > : 0.10...0.30  
difference> bar: (0.20...0.20)  
Shutoff  
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 45.00...65.00  
> 1000S.: (45.00...65.00)

2nd speed 1/min: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 35.00...55.00  
> 1000S.: (35.00...55.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 37.00...67.00  
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3,2...3,4  
KF mm: 5,6...6,0  
MS mm: 0,6...1,0  
SVS max. mm: 3,5  
LDA stroke mm: 6,1  
XK mm: 17,0...19,0  
XL mm: 8,6...12,0

Remarks:

: ...17  
: .00(10.00...20.00)3.



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA 2,2 H  
Edition : 18.02.91  
replaces : 20.07.88  
Calibrating oil : ISO-4113

Injection pump : VE4/10F2100L269  
Type number : 0 460 404 050  
Customer Part-No. :

Customer-specific information  
Customer : VM

Engine : HR 492 HJ

Power KW: 82  
Speed 1/min: -

TEST BENCH REQUIREMENTS

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Indicator setting  
Piston stroke> mm: 1.0  
Outlet> : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000

K15

Charge press. hPa: 1000  
Setting value mm: 1.50...1.90  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1000  
Charge press hPa: 1000  
Setting value bar: 4.40...5.00  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm3/  
> 1000S.: 66.00...67.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 3.0  
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700  
Del. quantity cm3/  
> 1000S.: 53.00...54.00  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 450  
Del. quantity cm3/  
> 1000S.: 13.00...17.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.0  
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2300  
Charge press hPa: 1000  
Del. quantity cm3/  
> 1000S.: 27.00...33.00

Start:

Speed 1/min: 100  
Del. quantity cm3/: 47.00...67.00  
mind> 1000S.: 47.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1500  
Inj.-qty. cm3/  
difference> 1000S.: 8.00...14.00  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1500  
TD-travel  
difference> mm: 0.90...1.10  
Shutoff  
electromagnet>Volt: 12  
SP press.-dif.measurement

1.Speed 1/min: 1500  
Supply pump  
pressure>  
difference> bar: 0.10...0.30  
Shutoff  
electromagnet Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100  
Charge press hPa: 1000  
TD travel mm: 7.10...7.90  
> mm: (6.80...8.20)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 1.50...1.90  
> mm: (1.00...2.40)

Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 1500  
Charge press. hPa: 1000  
TD travel mm: 4.10...4.90  
> mm: (3.80...5.20)

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 7.50...8.10  
Shutoff

electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.40...5.00  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 700

Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.30...3.90  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...83.40  
quantity> cm3/10s: (26.70...98.40)  
2nd speed 1/min: 2100  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700  
Charge-air pressure-setting  
point> hPa: 450  
LDA-stroke mm: 6.1  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 62.00...63.00  
> 1000S.: (60.00...65.00)

3rd speed 1/min: 2450  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.00...8.00  
> 1000S.: (0.00...8.00)

5th speed 1/min: 2300  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 27.00...33.00  
> 1000S.: (26.00...34.00)

9th speed 1/min: 2100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 57.70...60.70  
> 1000S.: (56.20...62.20)

12th speed 1/min: 1500  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 66.00...67.00  
> 1000S.: (64.50...68.50)

16th speed 1/min: 600  
Charge press. hPa: 1000  
Shutoff  
electromagnet>volt: 12

Del. quantity cm3/: 52.50...54.50  
> 1000H.: (52.00...55.00)  
18th speed 1/min: 700  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 53.00...54.00  
> 1000S.: (51.00...56.00)  
20th speed 1/min: 700  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 67.50...70.50  
> 1000S.: (66.00...72.00)

#### Electr. shutoff:

1st speed 1/min: 450  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)

#### Idle delivery:

1st speed 1/min: 450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 13.00...17.00  
> 1000S.: (10.00...20.00)  
Dispersion cm3/: 3.0  
> 1000S.: (3.0)  
2nd speed 1/min: 475  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 7.00...13.00  
> 1000S.: (5.00...15.00)  
4th speed 1/min: 550  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.50...5.50  
> 1000S.: (0.50...5.50)

#### Load-dependent start of delivery:

##### Inj.-qty.dif.measurement:

1st speed 1/min: 1500  
Inj.-qty. cm3/ : 3.00...5.00  
difference> 1000S.: -  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1500  
Inj.-qty. cm3/: 8.00...14.00  
difference> 1000S.: (8.00...14.00)  
Shutoff  
electromagnet>Volt: 12

#### TD-travel dif.measurement:

correttore anticipo iniezione (SV):  
1st speed 1/min: 1500  
TD-travel : 0.90...1.10

difference> mm: (0.90...1.10)  
Shutoff  
electromagnet>Volt: 12

#### SP press.-dif.measurement:

pompa di mandata (FP):  
1st speed 1/min: 1500  
Supply pump-  
pressure > : 0.10...0.30  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12

#### Automatic starting fuel delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 55.00...75.00  
> 1000S.: (55.00...75.00)

2nd speed 1/min: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 37.00...57.00  
> 1000S.: (37.00...57.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 47.00...67.00  
> 1000S.: (47.00...67.00)

#### Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

#### Mounting and assembly dimensions:

##### Designation

K	mm: 3,2...3,4
KF	mm: 5,6...6.0
MS	mm: 0,6...1,0
LDA stroke	mm: 6,1
XK	mm: 17.0...19.0
XL	mm: 10.3...13.7

##### Remarks:

: ...17  
: .00(10.00...20.00)3.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA  
Edition : 02.94  
replaces : 13.07.88  
Calibrating oil : ISO-4113

Injection pump : VE4/10F2100L168-2  
Type number : 0 460 404 051  
Customer Part-No. :

Customer-specific information  
Customer : VM

Engine : HR 492 HT

Power KW: 76  
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500  
Charge press. hPa: 800  
Setting value mm: 4.60...5.00  
Shutoff

electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500  
Charge press hPa: 800  
Setting value bar: 4.80...5.40  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500  
Charge press. hPa: 800  
Del. quantity cm3/  
> 1000S.: 56.50...57.50  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 3.0  
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600  
Del. quantity cm3/  
> 1000S.: 45.50...46.50  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 400  
Del. quantity cm3/  
> 1000S.: 13.00...17.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.0  
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2300  
Charge press hPa: 800  
Del. quantity cm3/  
> 1000S.: 27.00...33.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm3/: 37.00...67.00  
mind> 1000S.: 37.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1500

Charge press hPa: -  
Inj.-qty. cm<sup>3</sup>/  
difference> 1000S.: - 8.0...-14.0 "  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1500  
Charge press hPa: -  
TD-travel  
difference> mm: - 0.9...1.1 "  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100  
Charge press hPa: 800  
TD travel mm: 7.60...8.40  
> mm: (7.30...8.70)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1500  
Charge press hPa: 800  
TD travel mm: 4.60...5.00  
> mm: (4.10...5.50)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1000  
Charge press hPa: 800  
TD travel mm: 1.60...2.40  
> mm: (1.30...2.70)

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 6.90...7.50  
Shutoff

electromagnet>Volt: 12  
2nd speed 1/min: 1500  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 4.80...5.40  
Shutoff

electromagnet>Volt: 12  
3rd speed 1/min: 600  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 1.80...2.40  
Shutoff

electromagnet>Volt: 12

Overlow quantity at overflow valve:

1st speed 1/min: 600  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.20  
quantity> cm<sup>3</sup>/10s: (26.70...101.20)  
2nd speed 1/min: 2100  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700  
Charge-air pressure-setting  
point> hPa: 450  
LDA-stroke mm: 6.1  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 52.00...53.00  
> 1000S.: (50.00...55.00)

3rd speed 1/min: 2450  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 1.00...9.00  
> 1000S.: (0.50...9.50)

5th speed 1/min: 2300  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 27.00...33.00  
> 1000S.: (26.00...34.00)

9th speed 1/min: 2100  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 48.90...51.90  
> 1000S.: (47.40...53.40)

12th speed 1/min: 1500  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 56.50...57.50  
> 1000S.: (55.00...59.00)

18th speed 1/min: 600  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 45.50...46.50  
> 1000S.: (43.50...48.50)

20th speed 1/min: 600  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 58.50...61.50

> 1000S.: -

Electr. shutoff:

1st speed 1/min: 400  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 13.00...17.00  
> 1000S.: (10.00...20.00)  
Dispersion cm3/: 3.0  
> 1000S.: (3.0)  
2nd speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.00...2.00  
> 1000S.: (0.00...2.00)  
3rd speed 1/min: 450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 2.50...8.50  
> 1000S.: (0.50...10.50)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1500  
Charge press. hPa: -  
Inj.-qty. cm3/ : -3.0...-5.0 #  
difference> 1000S.: -  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):  
1st speed 1/min: 1500  
Charge press. hPa: -  
Supply pump-  
pressure > : -0.1...0.3 #  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 45.00...65.00  
> 1000S.: (45.00...65.00)

2nd speed 1/min: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 37.00...57.00  
> 1000S.: (37.00...57.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 37.00...67.00  
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.2...3.4  
KF mm: 5.6...6.0  
MS mm: 0.6...1.0  
SVS max. mm: 2.3  
LDA stroke mm: 6.1  
XK mm: 17.0...19.0  
XL mm: 9.4...12.8

Remarks:

: ...17  
: .00(10.00...20.00)3.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF  
Edition : 01.07.92  
replaces : 18.07.89  
Calibrating oil : ISO-4113

Injection pump : VE4/10F2050R318  
Type number : 0 460 404 059

Customer-specific information  
Customer : IVECO-SOFIM

Engine : 8144.97.2200

Power KW: 83

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40...48  
Electronically> : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: 0.3  
> (from BDC): ±0.02(0.04)

Indicator setting  
Piston stroke> mm: 1.0  
Outlet> : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 600  
Charge press. hPa: 800  
Setting value mm: 1.10...1.50

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 600  
Charge press hPa: 800  
Setting value bar: 3.40...4.00  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1950  
Charge press. hPa: 800  
Del. quantity cm3/  
> 1000S.: 56.00...57.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 3.0  
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 42.50...43.50  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 425  
Del. quantity cm3/  
> 1000S.: 12.50...16.50  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.0  
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2475  
Charge press hPa: 800  
Del. quantity cm3/  
> 1000S.: 14.00...20.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm3/: 55.00...85.00  
mind> 1000S.: 55.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 600  
Inj.-qty. cm3/  
difference> 1000s.: 13.00...19.00#  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 600  
TD-travel  
difference> mm: 0.60...0.80#  
Shutoff  
electromagnet>Volt: 12  
SP press.-dif.measurement

1.Speed 1/min: 600  
Supply pump  
pressure>  
difference> bar: 0.10...0.30'  
Shutoff  
electromagnet Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press hPa: 800  
TD travel mm: 1.10...1.50  
> mm: (0.80...1.80)  
electromagnet>Volt: 12  
2nd speed 1/min: 1200  
Charge press hPa: 800  
TD travel mm: 4.20...5.00  
> mm: (3.90...5.30)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2000  
Charge press hPa: 800  
TD travel mm: 8.70...9.50  
> mm: (8.40...9.80)  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 2300  
Charge press hPa: 800  
TD travel mm: 10.00...10.80  
> mm: (10.00...10.80)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 3.40...4.00  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1200  
Charge press. hPa: 800

Supply-pump  
pressure> bar: 5.20...5.80  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2000  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 7.20...7.80  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...83.30  
quantity> cm3/10s: (41.70...83.30)  
2nd speed 1/min: 2050  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm3/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600\*  
Charge-air pressure-setting  
point> hPa: 290  
LDA-stroke mm: 5.3  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 53.00...54.00  
> 1000s.: (51.00...56.00)  
2nd speed 1/min: 2550  
Charge press. hPa: 800  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...6.00  
> 1000s.: -  
3rd speed 1/min: 2475  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 14.00...20.00  
> 1000s.: (11.00...23.00)  
4th speed 1/min: 2350  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 31.00...39.00  
> 1000s.: -  
5th speed 1/min: 2050  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 54.00...57.00  
> 1000s.: (53.30...57.70)



6th speed 1/min: 1950  
 Charge press. hPa: 800  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 56.00...57.00  
 > 1000S.: (54.50...58.50)  
 7th speed 1/min: 1200  
 Charge press. hPa: 800  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 62.50...65.50  
 > 1000S.: -  
 8th speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 42.50...43.50  
 > 1000S.: (40.50...45.50)

Electr. shutoff:

1st speed 1/min: 425  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 425  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 12.50...16.50  
 > 1000S.: (10.50...18.50)  
 Dispersion cm3/: 3.0  
 > 1000S.: (3.0)  
 2nd speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 5.50...10.50  
 > 1000S.: (5.50...10.50)  
 3rd speed 1/min: 700  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 2.00...5.00  
 > 1000S.: (2.00...5.00)

Load-dependent start of delivery:  
 Inj.-qty.dif.measurement:

1st speed 1/min: 600  
 Inj.-qty. cm3/ : 13.00..19.00#  
 difference> 1000S.: (13.00...19.00)  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 600  
 Inj.-qty. cm3/: 11.00..13.00'  
 difference> 1000S.: (11.00...13.00)  
 Shutoff  
 electromagnet Volt: 12

TD-travel dif.measurement:  
 correttore anticipo iniezione (SV):  
 1st speed 1/min: 600  
 TD-travel : 0.60...0.80#  
 difference> mm: (0.60...0.80)  
 Shutoff  
 electromagnet>Volt: 12

SP press.-dif.measurement:  
 pompa di mandata (FP):  
 1st speed 1/min: 600  
 Supply pump-  
 pressure > : 0.10...0.30'  
 difference> bar: (0.10...0.30)  
 Shutoff  
 electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 350  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 50.00...70.00  
 > 1000S.: (50.00...70.00)

4th speed 1/min: 100  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 55.00...85.00  
 > 1000S.: (55.00...85.00)

Shutoff electromagnet:

Cut-in  
 >min voltage : 10.0  
 Rated voltage : 12.0

Mounting and assembly dimensions:

KF	mm: 5.6...6.0
MS	mm: 1.6...2.0
XK	mm: 20.0...22.0
XL	mm: 11.8...15.2
Ya	mm: 37.9...39.9
Yb	mm: 41.6...47.2

Remarks: : .50(10.50...18.50)3.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA
Edition : 02.94
replaces : 14.02.92
Calibrating oil : ISO-4113
Injection pump : VE4/10F1600L352
Type number : 0 460 404 061
Customer Part-No. :

Customer-specific information
Customer : VM

Engine : HR 494 HP

Power KW: 53
Speed 1/min: 1600

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 000

Opening
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 1.90...2.30
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Setting value bar: 4.80...5.40
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Del. quantity cm3/
> 1000S.: 43.50...44.50
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 3.5
> 1000S.: (3.5)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
> 1000S.: 11.50...15.50
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.5
> 1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1650
Del. quantity cm3/
> 1000S.: 27.00...33.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...85.00
mind> 1000S.: 45.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200
Inj.-qty. cm3/
difference> 1000S.: - 10.0...-18.0 #
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1200
TD-travel
difference> mm: -0.9...-1.1 #
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1600  
TD travel mm: 3.60...4.40  
> mm: (3.30...4.70)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1200  
TD travel mm: 1.90...2.30  
> mm: (1.40...2.80)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1000  
TD travel mm: 0.70...1.50  
> mm: (0.40...1.80)

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

2nd speed 1/min: 600  
Supply-pump  
pressure> bar: 2.40...3.00

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1200  
Supply-pump  
pressure> bar: 4.80...5.40

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1600  
Supply-pump  
pressure> bar: 6.40...7.00

Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.20  
quantity> cm<sup>3</sup>/10s: (26.70...101.20)

2nd speed 1/min: 1600  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1700  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

5th speed 1/min: 1650  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 27.00...33.00  
> 1000S.: (24.00...36.00)

8th speed 1/min: 1625  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 33.50...41.50  
9th speed 1/min: 1600

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 37.00...40.00  
> 1000S.: (35.50...41.50)

12th speed 1/min: 1200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 43.50...44.50  
> 1000S.: (41.00...47.00)

20th speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 42.50...45.50  
> 1000S.: (41.00...47.00)

Mech. shutoff:

1st speed 1/min: 1600  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: 12

Electr. shutoff:

1st speed 1/min: 400  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 11.50...15.50  
> 1000S.: (9.50...17.50)

Dispersion cm<sup>3</sup>/: 3.5  
> 1000S.: (3.5)  
2nd speed 1/min: 550  
Shutoff  
electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
3rd speed 1/min: 480  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 2.00...8.00

> 1000S.: (1.00...9.00)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1200  
Inj.-qty. cm<sup>3</sup>/ : -5.0...-7.0 "  
difference> 1000S.: -  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1200  
Supply pump-  
pressure > : -0.1...-0.3 "  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 50.00...80.00  
> 1000S.: (50.00...80.00)

2nd speed 1/min: 450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 40.00...60.00  
> 1000S.: (40.00...60.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 45.00...85.00  
> 1000S.: (45.00...85.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.7...5.9
MS	mm: 0.6...1.0
SVS max.	mm: 1.3
XK	mm: 17.0...19.0
XL	mm: 14.2...17.6

Remarks:

: ...15  
: .50(9.50...17.50) 3.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF  
Edition : 03.07.92  
replaces : 17.07.89  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/10F2050R361  
Type number : 0 460 404 064  
Customer Part-No. :

Customer-specific information  
Customer : IVECO-SOFIM

Engine : 8144.97.2280

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40...48  
Electronically> : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: 0.2  
> (from BDC): ±0.02(0.04)

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000  
Charge press. hPa: 1000  
Setting value mm: 2.80...3.20  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1000  
Charge press hPa: 1000  
Setting value bar: 5.10...5.70  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 62.50...63.50  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 3.0  
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 35.50...36.50  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 425  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 9.00...13.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 2.7  
> 1000S.: (2.7)

Residual-Delivery Setting

Speed 1/min: 500  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 3.00...7.00  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500  
Charge press hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 21.00...27.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 60.00...90.00  
mind> 1000S.: 60.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1000  
Charge press hPa: 1000  
Inj.-qty. cm3/  
difference> 1000s.: 14.50...20.50#  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1000  
Charge press hPa: 1000  
TD-travel  
difference> mm: 0.60...0.80#  
Shutoff  
electromagnet>Volt: 12  
SP press.-dif.measurement

1.Speed 1/min: 1000  
Charge press hPa: 1000  
Supply pump  
pressure>  
difference> bar: 0.10...0.30\*  
Shutoff  
electromagnet Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2200  
Charge press hPa: 1000  
TD travel mm: 8.00...8.80  
> mm: (7.70...9.10)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 2.80...3.20  
> mm: (2.30...3.70)  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 600  
Charge press hPa: 1000  
TD travel mm: 0.60...1.40  
> mm: (0.30...1.70)  
Shutoff  
electromagnet>Volt: 12  
6th speed 1/min: 2000  
Charge press. hPa: 1000  
TD travel mm: 7.40...8.20  
> mm: (7.10...8.50)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600

Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.10...4.70  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 5.10...5.70  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2000  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 7.30...7.90  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...83.40  
quantity> cm3/10s: (41.70...83.40)  
2nd speed 1/min: 2300  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm3/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800  
Charge-air pressure-setting  
point> hPa: 400  
LDA-stroke mm: 4.8  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 52.50...53.50  
> 1000s.: (50.50...55.50)  
3rd speed 1/min: 2600  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.00...7.00  
> 1000s.: -  
5th speed 1/min: 2500  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 21.00...27.00  
> 1000s.: (20.00...28.00)  
9th speed 1/min: 2300  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 53.50...56.50

> 1000S.: (52.80...57.20)  
10th speed 1/min: 1950  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 56.50...1.50  
> 1000S.: -  
11th speed 1/min: 800  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 58.00...61.00  
> 1000S.: -  
12th speed 1/min: 1200  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 62.50...63.50  
> 1000S.: (61.00...65.00)  
18th speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 35.50...36.50  
> 1000S.: (33.50...38.50)

Electr. shutoff:

1st speed 1/min: 425  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 425  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 9.00...13.00  
> 1000S.: (8.00...14.00)  
2nd speed 1/min: 475  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.00...9.00  
> 1000S.: -

Rest delivery:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.00...7.00  
> 1000S.: (2.00...8.00)  
2nd speed 1/min: 650  
Shutoff  
electromagnet Volt: 12

Del. quantity cm3/: 1.00...4.00  
> 1000S.: -

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

2nd speed 1/min: 1000  
Charge press. hPa: 1000  
Inj.-qty. cm3/: 12.00..14.00\*  
difference> 1000S.: (12.00...14.00)  
Shutoff

electromagnet Volt: 12  
4th speed 1/min: 1000  
Charge press. hPa: 1000  
Inj.-qty. cm3/: 14.50..20.50#  
difference> 1000S.: (13.50...21.50)  
Shutoff

electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
TD-travel : 0.60...0.80#  
difference> mm: (0.60...0.80)  
Shutoff

electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply pump-  
pressure > : 0.1...0.30\*  
difference> bar: (0.10...0.30)  
Shutoff

electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)  
gaz d'échappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1000  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 42.00...44.00  
> 1000S.: (40.50...45.50)

Automatic starting fuel delivery:

1st speed 1/min: 200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 65.00...95.00  
> 1000S.: (65.00...95.00)

2nd speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 30.00...40.00  
> 1000S.: (30.00...40.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 60.00...90.00  
> 1000s.: (60.00...90.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

KF mm: 5.6...6.0  
MS mm: 1.6...2.0  
Ya mm: 33.0...35.0  
Yb mm: 49.7...55.3

Ajustement Potentiometer:

Angle for  
pot. > °: ->12<-ARF  
Supply voltage  
pot. > volt: 5.00  
Output volt  
pot. > volt: 2.41

Remarks:  
:  
: 0 (0.00...0.00) ..0.0



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA 2,2 F1
Edition : 14.04.92
replaces : 18.02.91
Calibrating oil : ISO-4113
Injection pump : VE4/10F2100L269-1
Type number : 0 460 404 065
Customer Part-No. :

Customer-specific information
Customer : VM

Engine : HR 492.4 HJ

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 000

Opening
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.50...1.90
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 4.40...5.00
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 66.00...67.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 3.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
> 1000S.: 45.00...46.00
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 13.00...17.00
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.0
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 27.00...33.00

Start:

Speed 1/min: 100
Del. quantity cm3/: 47.00...67.00
mind> 1000S.: 47.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm3/
difference> 1000S.: 8.00...14.00
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1. Speed 1/min: 1500  
TD-travel  
difference> mm: 0.90...1.10  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100  
Charge press hPa: 1000  
TD travel mm: 7.10...7.90  
> mm: (6.80...8.20)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 1.50...1.90  
> mm: (1.00...2.40)

Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 1500  
Charge press. hPa: 1000  
TD travel mm: 4.10...4.90  
> mm: (3.80...5.20)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 7.50...8.10  
Shutoff

electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.40...5.00  
Shutoff

electromagnet>Volt: 12  
3rd speed 1/min: 700  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.60...4.20  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...83.40  
quantity> cm<sup>3</sup>/10s: (26.70...98.40)

2nd speed 1/min: 2100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700\*  
Charge-air pressure-setting  
point> hPa: 450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 58.50...59.50  
> 1000S.: (56.50...61.50)

3rd speed 1/min: 2450  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...8.00  
> 1000S.: (0.00...8.00)

5th speed 1/min: 2300  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 27.00...33.00  
> 1000S.: (26.00...34.00)

9th speed 1/min: 2100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 56.50...59.50  
> 1000S.: (55.00...61.00)

12th speed 1/min: 1500  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 66.00...67.00  
> 1000S.: (64.50...68.50)

18th speed 1/min: 700  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 45.00...46.00  
> 1000S.: (43.00...48.00)

20th speed 1/min: 700  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 67.70...70.70  
> 1000S.: (66.20...72.20)

Electr. shutoff:

1st speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 13.00...17.00  
> 1000S.: (10.00...20.00)  
Dispersion cm3/: 3.0  
> 1000S.: (3.0)  
2nd speed 1/min: 475  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 7.00...13.00  
> 1000S.: (5.00...15.00)  
4th speed 1/min: 550  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.50...5.50  
> 1000S.: (0.50...5.50)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1500  
Inj.-qty. cm3/ : 3.00...5.00  
difference> 1000S.: -  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1500  
Inj.-qty. cm3/ : 8.00...14.00  
difference> 1000S.: -  
Shutoff  
electromagnet>Volt: 12

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1500  
TD-travel : 0.90...1.10  
difference> mm: -  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1500  
Supply pump-  
pressure > : 0.10...0.30  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 52.00...72.00  
> 1000S.: (52.00...72.00)

2nd speed 1/min: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 40.00...60.00  
> 1000S.: (40.00...60.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 47.00...67.00  
> 1000S.: (47.00...67.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10,0  
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm: 3,2...3,4
KF	mm: 5,6...6,0
MS	mm: 0,6...1,0
XK	mm: 20,0...22,0
XL	mm: 10,0...13,4

Remarks:

: ...17  
: .00(10.00...20.00)3.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 02.08.93
replaces : 07.12.92
Calibrating oil : ISO-4113
Injection pump : VE4/10F2050R364
Type number : 0 460 404 066
Customer Part-No. :

Customer-specific information
Customer : SOFIM

Engine : 8140.67.2580

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: 0.2
> (from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 3.10...3.50
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 4.50...5.10
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 2000
Del. quantity cm3/
> 1000S.: 41.00...42.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 3.0
> 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
> 1000S.: 15.00...19.00
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.0
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2200
Del. quantity cm3/
> 1000S.: 14.00...20.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 70.00...100.00
mind> 1000S.: 70.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1000
Inj.-qty. cm3/
difference> 1000S.: 18.50...19.50 #
Shutoff
electromagnet>Volt: 12
SP press.-dif.measurement

1.Speed 1/min: 1000
Supply pump
pressure>
difference> bar: 0.10...0.30#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1800  
 TD travel mm: 7.30...8.10  
 > mm: (7.00...8.40)  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1000  
 TD travel mm: 3.10...3.50  
 > mm: (2.60...4.00)  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 600  
 TD travel mm: 0.80...1.60  
 > mm: (0.50...1.90)  
 Shutoff  
 electromagnet>Volt: 12  
 5th speed 1/min: 2000  
 TD travel mm: 8.20...9.00  
 > mm: (7.90...9.30)  
 Shutoff  
 electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2000  
 Supply-pump pressure> bar: 7.00...7.60  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1000  
 Supply-pump pressure> bar: 4.50...5.10  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 500  
 Supply-pump pressure> bar: 3.50...4.10  
 Shutoff  
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow quantity> cm3/10s: 41.70...83.40  
 2nd speed 1/min: 2000  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow quantity> cm3/10s: 55.60...139.00  
 2nd speed 1/min: 2000  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow quantity> cm3/10s: 40.60...154.00

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2330  
 Shutoff

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electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 5th speed 1/min: 2200  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 14.00...20.00  
 > 1000S.: (13.00...21.00)  
 12th speed 1/min: 2000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 41.00...42.00  
 > 1000S.: (39.50...43.5)  
 15th speed 1/min: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 36.50...39.50  
 > 1000S.: (35.50...40.50)  
 17th speed 1/min: 600  
 Shutoff  
 electromagnet>volt: 12  
 Del. quantity cm3/: 33.50...36.50  
 > 1000H.: (32.50...37.50)  
 20th speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 31.50...38.50  
 > 1000S.: (31.50...39.00)

Electr. shutoff:

1st speed 1/min: 375  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 375  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 15.00...19.00  
 > 1000S.: (12.00...22.00)  
 Dispersion cm3/: 3.0  
 > 1000S.: (3.0)  
 2nd speed 1/min: 465  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...2.00  
 > 1000S.: (0.00...2.00)  
 3rd speed 1/min: 400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 8.00...14.00  
 > 1000S.: (6.00...16.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1000  
Inj.-qty. cm3/ : 18.0..24.00 "  
difference> 1000S.: (17.0..25.0) "  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Inj.-qty. cm3/ : + 4.0..6.0 '  
difference> 1000S.: -  
Shutoff  
electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):  
1st speed 1/min: 1000  
TD-travel : 0.40...0.60 "  
difference> mm: -  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1000  
TD-travel : 0.80...1.80 '

Automatic starting fuel delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 40.00...60.00  
> 1000S.: (40.00...60.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 70.00...100.00  
> 1000S.: (70.00...100.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.6...6.0
MS	mm: 1.6...2.0
SVS max.	mm: 1.9
Ya	mm: 37.9...39.9
Yb	mm: 40.9...46.5

Remarks:

: ...19  
: .00(12.00...22.00)3.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA 2,2 M
Edition : 18.02.91
replaces : 07.11.89
Calibrating oil : ISO-4113
Injection pump : VE4/10F1600L379
Type number : 0 460 404 067
Customer Part-No. :

Customer-specific information
Customer : VM

Engine : HR 494 HT

Power KW: 68

TEST BENCH REQUIREMENTS

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 000

Opening
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Charge press. hPa: 1000
Setting value mm: 2.10...2.50
Shutoff
electromagnet>Volt: 12

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Supply-pump pressure

Speed 1/min: 1200
Charge press hPa: 1000
Setting value bar: 4,80...5.40
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 61.00...62.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 3.5
> 1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
> 1000S.: 52.00...53.00
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
> 1000S.: 11.00...15.00
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.5
> 1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1690
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 42.00...48.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...100.00
mind> 1000S.: 60.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200
Charge press hPa: 1000
Inj.-qty. cm3/

difference> 1000S.: 19.00...21.00  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1200  
Charge press hPa: 1000  
TD-travel  
difference> mm: 0.90...1.10  
Shutoff  
electromagnet>Volt: 12  
SP press.-dif.measurement

1.Speed 1/min: 1200  
Charge press hPa: 1000  
Supply pump  
pressure>  
difference> bar: 0.10...0.30  
Shutoff  
electromagnet Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1600  
Charge press hPa: 1000  
TD travel mm: 3.90...4.70  
> mm: (3.60...5.00)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1200  
Charge press hPa: 1000  
TD travel mm: 2.10...2.50  
> mm: (1.60...3.00)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 1.00...1.80  
> mm: (0.70...2.10)

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

2nd speed 1/min: 750  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.00...3.60  
Shutoff

electromagnet>Volt: 12  
3rd speed 1/min: 1200  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.80...5.40  
Shutoff

electromagnet>Volt: 12  
4th speed 1/min: 1600

Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 6.40...7.00  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...83.40  
quantity> cm<sup>3</sup>/10s: (26.70...98.40)  
2nd speed 1/min: 1600  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750\*  
Charge-air pressure-setting  
point> hPa: 200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 58.00...59.00  
> 1000S.: (55.50...61.50)

3rd speed 1/min: 1750  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

5th speed 1/min: 1690  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 42.00...48.00  
> 1000S.: (39.00...51.00)

9th speed 1/min: 1600  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 53.50...56.50  
> 1000S.: (52.00...58.00)

12th speed 1/min: 1200  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 61.10...62.10  
> 1000S.: (58.60...64,60)

18th speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 52.00...53.00  
> 1000S.: (49.50...55.50)



20th speed 1/min: 750  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 60.00...63.00  
> 1000S.: (58.50...64.50)

Mech. shutoff:

1st speed 1/min: 1600  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: 12

Electr. shutoff:

1st speed 1/min: 400  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 11.00...15.00  
> 1000S.: (8.50...18.50)  
Dispersion cm<sup>3</sup>/: 3.5  
> 1000S.: (3.5)  
2nd speed 1/min: 480  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 2.00...8.00  
> 1000S.: (1.00...9.00)  
3rd speed 1/min: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1200  
Charge press. hPa: 1000  
Inj.-qty. cm<sup>3</sup>/ : 19.00...21.00  
difference> 1000S.: (19.00...21.00)  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1200  
Charge press. hPa: 1000  
Inj.-qty. cm<sup>3</sup>/: 27.00...35.00  
difference> 1000S.: (27.00...35.00)  
Shutoff  
electromagnet>Volt: 12

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):

1st speed 1/min: -  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1200  
Charge press. hPa: 1000  
TD-travel : 0.90...1.10  
difference> mm: (0.90...1.10)  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1200  
Charge press. hPa: 1000  
Supply pump-  
pressure > : 0.10...0.30  
difference> bar: (0.10...0.30)  
Shutoff  
electromagnet>Volt: 12  
Shutoff  
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 58.00...88.00  
> 1000S.: (58.00...88.00)

2nd speed 1/min: 450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 49.00...63.00  
> 1000S.: (46.00...66.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 60.00...100.00  
> 1000S.: (60.00...100.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3,2...3,4  
KF mm: 5,6...6,0  
MS mm: 0,6...1,0  
SVS max. mm: 1,3

Remarks:

: ...15  
: .00(8.50...18.50) 3.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA
Edition : 08.95
replaces : 03.12.92
Calibrating oil : ISO-4113
Injection pump : VE4/10F2100L414
Type number : 0 460 404 068
Customer Part-No. :

Customer-specific information
Customer : VM

Engine : HR 425 CLI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.40...1.80
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 4.20...4.80
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 65.50...66.50

Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 3.0
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
> 1000S.: 43.00...44.00
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 13.00...17.00
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.0
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 40.00...46.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind> 1000S.: 45.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: 1000
Inj.-qty. cm3/
difference> 1000S.: -28.0...-34.0 #

Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement  
1.Speed 1/min: 1500  
Charge press hPa: 1000  
TD-travel  
difference> mm: -0.5...-0.7 #  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1500  
Charge press hPa: 1000  
TD travel mm: 3.40...4.20  
> mm: (3.10...4.50)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 1.40...1.80  
> mm: (0.90...2.30)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 700  
Charge press hPa: 1000  
TD travel mm: 0.20...1.00  
> mm: (0.00...1.30)

Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 2100  
Charge press. hPa: 1000  
TD travel mm: 6.10...6.90  
> mm: (5.80...7.20)

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 7.20...7.80

Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.20...4.80

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 700  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.20...3.80  
Shutoff

electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...83.40  
quantity> cm<sup>3</sup>/10s: (26.70...98.40)  
2nd speed 1/min: 2100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700  
Charge-air pressure-setting  
point> hPa: 350  
LDA-stroke mm: 7.1  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 55.50...56.50  
> 1000S.: (53.50...58.50)

3rd speed 1/min: 2550  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...8.00  
> 1000S.: (0.00...8.00)

5th speed 1/min: 2300  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 40.00...46.00  
> 1000S.: (39.00...47.00)

9th speed 1/min: 2100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 63.00...66.00  
> 1000S.: (61.50...67.50)

12th speed 1/min: 1500  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 65.50...66.50  
> 1000S.: (64.00...68.00)

18th speed 1/min: 700  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 43.00...44.00  
> 1000S.: (41.00...46.00)

20th speed 1/min: 700  
Charge press. hPa: 1000

Shutoff

electromagnet>Volt: 12  
Del. quantity cm3/: 65.50...68.50  
> 1000S.: (64.00...70.00)

Delivery-quant. and breakaway char.:

Inj.-qty.values,temp.-compensated

Del. quantity cm3/: 0.00...8.00  
> 1000S.: (0.00...8.00)

Electr. shutoff:

1st speed 1/min: 450  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 13.00...17.00  
> 1000S.: (10.00...20.00)

Dispersion cm3/: 3.0  
> 1000S.: (3.0)

2nd speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.00...5.00  
> 1000S.: (0.00...5.00)

3rd speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 2.50...7.50  
> 1000S.: (2.00...8.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1500  
Charge press. hPa: 1000  
Inj.-qty. cm3/ : -25.0...-27.0"  
difference> 1000S.: -

Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):  
1st speed 1/min: 1500  
Supply pump-  
pressure > : -0.1...-0.3 "  
difference> bar: -

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)  
gaz d'échappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1000  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 43.00...44.00  
> 1000S.: (41.00...46.00)

Automatic starting fuel delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 45.00...75.00  
> 1000S.: (45.00...75.00)

2nd speed 1/min: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 25.00...45.00  
> 1000S.: (25.00...45.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 45.00...75.00  
> 1000S.: (45.00...75.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.2...3.4  
KF mm: 5.2...5.6  
MS mm: 0.6...1.0  
LDA stroke mm: 7.1  
XK mm: 38.8...40.8  
XL mm: 37.2...46.8

Ajustement Potentiometer:

Supply voltage  
pot. > volt: 5.0  
Output volt  
pot. > volt: 2.31

Remarks: :

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PENTA
Edition : 09.08.95
replaces : 02.94
Calibrating oil : ISO-4113
Injection pump : VE6/12F1950L527
Type number : 0 460 426 218
Customer Part-No. :

Customer-specific information
Customer : PENTA

Engine : KAD / KAMD 42 CE
Power KW: 155

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 110

Opening
Pressure> bar: 250.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: 0.3
> (from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1500
Setting value mm: 3.30...3.70

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1500
Setting value bar: 7.70...8.30

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1500
Del. quantity cm3/
> 1000s.: 83.50...84.50
Dispersion cm3/: 5.0
> 1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
> 1000s.: 57.50...58.50

Low-idle speed regulation

Speed 1/min: 325
Del. quantity cm3/
> 1000s.: 21.00...25.00
Del. quantity cm3/: 14.0
> 1000s.: (14.0)

Full-load speed regulation

Speed 1/min: 2050
Charge press hPa: 1500
Del. quantity cm3/
> 1000s.: 57.00...63.00

Start:

Speed 1/min: 100
Del. quantity cm3/: 20.00...70.00
mind> 1000s.: 20.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1800
Charge press hPa: 1500
TD travel mm: 4.10...5.10
> mm: (3.70...5.50)
3rd speed 1/min: 1500
Charge press hPa: 1500
TD travel mm: 3.30...3.70
> mm: (2.80...4.20)
4th speed 1/min: 1100
Charge press hPa: 1500
TD travel mm: 1.10...2.10
> mm: (0.70...2.50)

5th speed 1/min: 1900  
Charge press. hPa: 1500  
TD travel mm: 4.50...5.50  
> mm: (4.10...5.90)

Supply-pump pressure characteristic:

1st speed 1/min: 1900  
Charge press. hPa: 1500  
Supply-pump pressure> bar: 9.00...9.60  
2nd speed 1/min: 1500  
Charge press. hPa: 1500  
Supply-pump pressure> bar: 7.70...8.30  
4th speed 1/min: 800  
Charge press. hPa: 1500  
Supply-pump pressure> bar: 5.20...5.80

Overflow quantity at overflow valve:

1st speed 1/min: 800  
Charge press. hPa: 1500  
Overflow quantity> cm3/10s: 69.50...152.90  
2nd speed 1/min: 1900  
Charge press. hPa: 1500  
Overflow quantity> cm3/10s: 97.30...180.70  
2nd speed 1/min: 1900  
Charge press. hPa: 1500  
Overflow quantity> cm3/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800  
Charge-air pressure-setting point> hPa: 750  
LDA-stroke mm: 7.1  
Del. quantity cm3/: 85.00...86.00  
> 1000S.: (81.50...89.50)  
2nd speed 1/min: 2300  
Charge press. hPa: 1500  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
5th speed 1/min: 2050  
Charge press. hPa: 1500  
Del. quantity cm3/: 57.00...63.00  
> 1000S.: (52.00...68.00)  
8th speed 1/min: 2180  
Charge press. hPa: 1500  
Del. quantity cm3/: 0.00...25.00  
> 1000S.: (0.00...25.00)  
9th speed 1/min: 1900  
Charge press. hPa: 1500  
Del. quantity cm3/: 75.50...79.50  
> 1000S.: (74.00...81.00)  
12th speed 1/min: 1500  
Charge press. hPa: 1500  
Del. quantity cm3/: 83.50...84.50  
> 1000S.: (81.00...87.00)

15th speed 1/min: 1250  
Charge press. hPa: 1500  
Del. quantity cm3/: 84.50...89.50  
> 1000S.: (83.50...90.50)  
18th speed 1/min: 600  
Charge press. hPa: -  
Del. quantity cm3/: 57.50...58.50  
> 1000S.: (55.00...61.00)  
20th speed 1/min: 800  
Charge press. hPa: 1500  
Del. quantity cm3/: 94.00...101.0  
> 1000S.: (92.50...102.50)

Mech. shutoff:

1st speed 1/min: 1900  
Charge press. hPa: 1500  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff electromagnet>volt: -

Electr. shutoff:

1st speed 1/min: 325  
Charge press. hPa: -  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff electromagnet>volt: 12.0

Idle delivery:

1st speed 1/min: 325  
Del. quantity cm3/: 21.00...25.00  
> 1000S.: (18.00...28.00)  
2nd speed 1/min: 580  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 275  
Del. quantity cm3/: 50.00...100.00  
> 1000S.: (50.00...100.00)  
2nd speed 1/min: 400  
Del. quantity cm3/: 30.00...60.00  
> 1000S.: (30.00...60.00)  
4th speed 1/min: 100  
Del. quantity cm3/: 20.00...70.00  
> 1000S.: (20.00...70.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
MS	mm: 0.8...1.2
LDA stroke	mm: 7.1
Ya	mm: 37.2...39.2
Yb	mm: 49.1...56.9

Remarks:

: FB = 1,70 MM

:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Operate control lever after each manifold-pressure compensator pressure change.

Pushing electromagnet.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PENTA  
Edition : 09.08.95  
replaces : 03.94  
Calibrating oil : ISO-4113

Injection pump : VE6/12F1950L528  
Type number : 0 460 426 219  
Customer Part-No. :

Customer-specific information  
Customer : PENTA

Engine : KAD 42

Power KW: 169

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 110

Opening  
Pressure> bar: 250.00...253.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: 0.3  
> (from BDC): ±0.02(0.04)

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 1500  
Charge press. hPa: 1500  
Setting value mm: 4.10...4.30

## Supply-pump pressure

Speed 1/min: 1500  
Charge press hPa: 1500  
Setting value bar: 8.00...8.60

## Full-load del. with charge press.:

Speed 1/min: 1800  
Charge press. hPa: 1500  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 88.50...89.50  
Dispersion cm<sup>3</sup>/: 5.0  
> 1000S.: (5.0)

## Full-load del. w/out charge press.:

Speed 1/min: 600  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 42.00...43.00

## Low-idle speed regulation

Speed 1/min: 325  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 7.0<sup>n</sup>...11.00  
Del. quantity cm<sup>3</sup>/: 5.0  
> 1000S.: (5.0)

## Full-load speed regulation

Speed 1/min: 2180  
Charge press hPa: 1500  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 9.00...15.00

## Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 40.00...90.00  
mind> 1000S.: 40.00

## Inspection-pump test specifications Test specifications in parentheses

## Timing-device characteristic:

2nd speed 1/min: 1900  
Charge press hPa: 1500  
TD travel mm: 6.20...7.00  
> mm: (5.90...7.30)  
3rd speed 1/min: 1500  
Charge press hPa: 1500  
TD travel mm: 4.10...4.30  
> mm: (3.50...4.90)  
4th speed 1/min: 1100  
Charge press hPa: 1500  
TD travel mm: 1.00...1.80  
> mm: (0.70...2.10)



Supply-pump pressure characteristic:

1st speed 1/min: 1900  
Charge press. hPa: 1500  
Supply-pump  
pressure> bar: 9.10...9.70  
2nd speed 1/min: 1500  
Charge press. hPa: 1500  
Supply-pump  
pressure> bar: 8.00...8.60  
3rd speed 1/min: 1100  
Charge press. hPa: 1500  
Supply-pump  
pressure> bar: 6.80...7.40

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Charge press. hPa: 1500  
Overflow : 88.90...133.40  
quantity> cm<sup>3</sup>/10s: (73.90...148.40)  
2nd speed 1/min: 1950  
Charge press. hPa: 1500  
Overflow : 97.30...180.70  
quantity> cm<sup>3</sup>/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800  
Charge-air pressure-setting  
point> hPa: 750  
LDA-stroke mm: 7.5  
Del. quantity cm<sup>3</sup>/: 64.50...65.50  
> 1000S.: (61.00...69.00)  
2nd speed 1/min: 2300  
Charge press. hPa: 1500  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
5th speed 1/min: 2180  
Charge press. hPa: 1500  
Del. quantity cm<sup>3</sup>/: 9.00...15.00  
> 1000S.: -  
9th speed 1/min: 1950  
Charge press. hPa: 1500  
Del. quantity cm<sup>3</sup>/: 86.00...90.00  
> 1000S.: (84.50...91.50)  
12th speed 1/min: 1800  
Charge press. hPa: 1500  
Del. quantity cm<sup>3</sup>/: 88.50...89.50  
> 1000S.: (86.00...92.00)  
15th speed 1/min: 1500  
Charge press. hPa: 1500  
Del. quantity cm<sup>3</sup>/: 88.50...93.50  
> 1000S.: (87.50...94.50)  
17th speed 1/min: 1250  
Charge press. hPa: 1500  
Del. quantity cm<sup>3</sup>/: 83.50...88.50  
> 1000H.: (82.50...89.50)

18th speed 1/min: 600  
Charge press. hPa: -  
Del. quantity cm<sup>3</sup>/: 42.00...43.00  
> 1000S.: (39.50...45.50)

Mech. shutoff:

1st speed 1/min: 1950  
Charge press. hPa: 1500  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Electr. shutoff:

1st speed 1/min: 325  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: 12.0

Idle delivery:

1st speed 1/min: 325  
Del. quantity cm<sup>3</sup>/: 7.00...11.00  
> 1000S.: (4.00...14.00)  
Dispersion cm<sup>3</sup>/: 5.0  
> 1000S.: (5.0)  
2nd speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 275  
Del. quantity cm<sup>3</sup>/: 50.00...100.00  
> 1000S.: (50.00...100.00)

2nd speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: 25.00...55.00  
> 1000S.: (25.00...55.00)

4th speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 40.00...90.00  
> 1000S.: (40.00...90.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -  
KF mm: KOT  
MS mm: 1.6...1.9

LDA stroke mm: 7.5  
Ya mm: 37.2...39.2  
Yb mm: 55.1...62.9

Remarks:

⋮

Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

Pushing electromagnet.

Operate control lever after each  
manifold-pressure compensator pressure  
change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV  
Edition : 06.95  
replaces : 03.12.91  
Calibrating oil : ISO-4113

Injection pump : VE4/8F2100R357  
Type number : 0 460 484 031  
Customer Part-No. :

Customer-specific information  
Customer : VW

Engine : 028.A 1.9L.

Power KW: 45

TEST BENCH REQUIREMENTS

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery

Indicator setting  
Piston stroke> mm: 1.0  
Outlet> : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250  
Setting value mm: 3.10...3.50  
Shutoff  
electromagnet>Volt: 12

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Supply-pump pressure

Speed 1/min: 1250  
Setting value bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250  
Del. quantity cm3/  
> 1000S.: 35.50...36.50  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/  
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550  
Del. quantity cm3/  
> 1000S.: 2.00...3.00  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400  
Del. quantity cm3/  
> 1000S.: 10.00...14.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm3/  
mind> 1000S.: 35.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1250  
Inj.-qty. cm3/  
difference> 1000S.: 5.00...11.00  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1250  
TD-travel  
difference> mm: 0.30...0.50  
Shutoff  
electromagnet>Volt: 12  
SP press.-dif.measurement

1.Speed 1/min: 1250

Supply pump  
pressure>  
difference> bar: 0.50...0.90  
Shutoff  
electromagnet Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1700  
TD travel mm: 5.00...5.80  
> mm: (4.70...6.10)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1250  
TD travel mm: 3.10...3.50  
> mm: (2.60...4.00)  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 750  
TD travel mm: 1.00...1.80  
> mm: (0.70...2.10)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1850  
Supply-pump  
pressure> bar: 7.10...7.70  
> bar: (6.90...7.90)  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Supply-pump  
pressure> bar: 5.70...6.30  
> bar: (5.50...6.50)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 750  
Supply-pump  
pressure> bar: 4.50...5.10  
> bar: (4.30...5.30)  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...83.40  
quantity> cm<sup>3</sup>/10s: (26.80...98.30)  
2nd speed 1/min: 1850  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...138.90  
quantity> cm<sup>3</sup>/10s: (40.70...153.90)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 2650  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...6.00  
> 1000s.: (0.00...6.00)  
5th speed 1/min: 2400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 10.00...14.00  
> 1000s.: (8.00...16.00)  
8th speed 1/min: 2250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 18.00...28.00  
> 1000s.: (17.00...29.00)  
9th speed 1/min: 1850  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 32.00...34.00  
> 1000s.: (30.80...35.20)  
10th speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 29...34.50  
> 1000s.: (27.00...37.00)  
12th speed 1/min: 1250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 35.50...36.50  
> 1000s.: (33.80...38.20)  
20th speed 1/min: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 30.50...33.50  
> 1000s.: (29.00...35.00)

Electr. shutoff:

1st speed 1/min: 425  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 425  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 7.00...9.00

> 1000S.: (4.00...12.00)

High Idle:

1st speed 1/mi: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 7.00...9.00  
> 1000S.: (4.00...12.00)

Rest delivery:

1st speed 1/min: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 2.00...3.00  
> 1000S.: (0.50...4.50)  
2nd speed 1/min: 500  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 2.50...4.50  
> 1000S.: (1.00...6.00)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

3rd speed 1/min: 1250  
Inj.-qty. cm3/: 5.00...11.00  
difference> 1000S.: (4.00...12.00)  
Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 1250  
Inj.-qty. cm3/: 0.00...3.00  
difference> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>Volt: 12

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):

1st speed 1/min: 1250  
TD-travel : 0.30...0.50  
difference> mm: (0.30...0.50)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1250  
TD-travel : 0.70...1.10  
difference> mm: (0.40...1.40)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1250  
Supply pump-  
pressure > : 0.50...0.90  
difference> bar: (0.30...1.10)  
Shutoff  
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm3/: 35.00...85.00  
> 1000S.: (35.00...85.00)

2nd speed 1/min: 380  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 18.00...38.00  
> 1000S.: (18.00...38.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 35.00...85.00  
> 1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.1...5.5
MS	mm: 1.2...1.5
SVS max.	mm: 4.5
XK	mm: 17.0...19.0
XL	mm: 10.6...14.0

Remarks:

:  
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FORD
Edition : 09.08.95
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2400R615
Type number : 0 460 484 079
Customer Part-No. :

Customer-specific information
Customer : FORD

Engine : 1.8 IDI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 0.85
> mm: +0.02(0.05)
Outlet > : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 6.50...6.90

AFB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.40...7.00
KSB/AFB

valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Full-load del. w/out charge press.:

Speed 1/min: 1750
Del. quantity cm3/
> 1000S.: 31.0...31.4

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.0
> 1000S.: (3.0)

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Residual-Delivery Setting

Speed 1/min: 530
Del. quantity cm3/
> 1000S.: 0.20...5.80

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet Volt: 12.0
Dispersion cm3/: 2.0
> 1000S.: (2.5)

Full-load speed regulation

Speed 1/min: 2625
Del. quantity cm3/
> 1000S.: 9.50...15.50

KSB/AFB
valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...70.00
mind> 1000S.: 50.00

KSB/AFB
Valve > Volt: 12.0
Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200  
Inj.-qty. cm3/  
difference> 1000S.: -5.2...13.2 \*  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
TD-travel dif.measurement

1.Speed 1/min: 1200  
TD-travel  
difference> mm: -1.5...1.7 \*  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 400  
TD travel mm: 3.4...3.6  
> mm: (2.5...4.5)  
KSB/AFB  
valve > Volt: -  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1000  
TD travel mm: 2.80...5.20  
> mm: (2.70...5.30)  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
3rd speed 1/min: 800  
TD travel mm: 2.80...3.60  
> mm: (2.40...4.00)  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
4th speed 1/min: 1500  
TD travel mm: 6.50...6.90  
> mm: (6.00...7.40)  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
5th speed 1/min: 2000  
TD travel mm: 8.40...9.20  
> mm: (8.00...9.60)  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 750  
Supply-pump  
pressure> bar: 4.10...4.70  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1500  
Supply-pump  
pressure> bar: 6.40...7.00  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
3rd speed 1/min: 2000  
Supply-pump  
pressure> bar: 7.90...8.50  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 750  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
Overflow : 41.70...83.40  
quantity> cm3/10s: (26.80...97.40)  
2nd speed 1/min: 2200  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
Overflow : 55.60...152.90  
quantity> cm3/10s: (41.60...152.90)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 2950  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 0.00...2.00  
> 1000S.: (0.00...2.00)  
2nd speed 1/min: 2625  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet Volt: 12.0  
Del. quantity cm3/: 9.50...15.5  
> 1000S.: (8.00...17.0)  
3rd speed 1/min: 2550  
KSB/AFB  
valve > Volt: 12.0  
Shutoff

electromagnet>Volt: 12.0  
Del. quantity cm3/: 15.0...23.0  
> 1000S.: (13.0...25.0)  
4th speed 1/min: 2400  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 25.1...27.1  
> 1000S.: (24.1...28.1)  
5th speed 1/min: 1750  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 31.0...31.40  
> 1000S.: (29.5...32.90)  
6th speed 1/min: 1000  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 28.7...31.7  
> 1000S.: (27.9...32.5)  
7th speed 1/min: 750  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 28.5...31.5  
> 1000S.: (27.7...32.3)

Electr. shutoff:

1st speed 1/min: 425  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -  
KSB/AFB  
valve > Volt: 12.0

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 425  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet Volt: 12.0  
Del. quantity cm3/: 6.00...10.0  
> 1000S.: (4.00...12.00)

High Idle:

1st speed 1/mi: 570  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 11.0...15.00  
> 1000S.: (9.00...17.00)

Rest delivery:

1st speed 1/min: 500  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 0.20...5.80  
> 1000S.: (0.20...5.80)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1200  
Inj.-qty. cm3/ : -5.0...7.0 "  
difference> 1000S.: -  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1250  
Inj.-qty. cm3/: 2.0...8.0 Z'  
difference> 1000S.: -  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet Volt: 12.0

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1200  
TD-travel : -1.7...2.5 '  
difference> mm: -  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0

SP press.-dif.measurement:

pompa di mandata (FP):  
1st speed 1/min: 1200  
Supply pump-  
pressure > : -0.1...0.3 "  
difference> bar: -  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0

Automatic starting fuel delivery:

1st speed 1/min: 200



KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 50.00...80.00  
> 1000S.: LFG/LL VH-VL

2nd speed 1/min: 500  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 24.00...36.00  
> 1000S.: LFG/LL VH-VL

3rd speed 1/min: 275  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 50...80 VH/VL  
> 1000S.: LFG/ERHÖHTER LL

4th speed 1/min: 100  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 50...70 VH/VL  
> 1000S.: LFG ERHÖHTER LL

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: KOT
MS	mm: 2.1...2.3
Ya	mm: 31.6...35.6
Yb	mm: 62.9...71.5

Remarks:

:  
:

Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control

MO1

lever on distributor-head end

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FORD
Edition : 09.08.95
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2400R622
Type number : 0 460 484 081
Customer Part-No. :

Customer-specific information
Customer : FORD

Engine : 1.8IDI
Power KW: 44

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 0.85
> mm: +0.02(0.05)
Outlet > : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 5.40...5.80
AFB/AFB
valve > Volt: -
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.50...7.10
KSB/AFB
valve > Volt: -
Shutoff
electromagnet>Volt: 12.0

Full-load del. w/out charge press.:

Speed 1/min: 1500
Del. quantity cm3/
> 1000S.: 28.8...29.2
KSB/AFB
valve > Volt: -
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.0
> 1000S.: (3.0)

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Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 2.50...3.5u
KSB/AFB
valve > Volt: -
Shutoff
electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2550
Del. quantity cm3/
> 1000S.: 17.0...23.0
KSB/AFB
valve > Volt: -
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...70.00
mind> 1000S.: 50.00
KSB/AFB
Valve > Volt: -
Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200  
Inj.-qty. cm3/  
difference> 1000S.: -6.6...10.4 \*  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
TD-travel dif.measurement

1.Speed 1/min: 1200  
TD-travel  
difference> mm: - 0.7...0.9 \*  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 400  
TD travel mm: 2.7...2.9  
> mm: (1.8...3.8)  
KSB/AFB  
valve > Volt: 12.0  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1000  
TD travel mm: 3.50...5.90  
> mm: (3.40...6.00)  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0  
3rd speed 1/min: 800  
TD travel mm: 1.6...2.4  
> mm: (1.2...2.8)  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
4th speed 1/min: 1500  
TD travel mm: 5.4...5.8  
> mm: (4.9...6.3)  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
5th speed 1/min: 2400  
TD travel mm: 9.1...9.9  
> mm: (8.7...10.3)  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 750  
Supply-pump  
pressure> bar: 4.30...4.90  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1500  
Supply-pump  
pressure> bar: 6.5...7.1  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
3rd speed 1/min: 2400  
Supply-pump  
pressure> bar: 9.0...9.60  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 450  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
Overflow : 41.70...83.40  
quantity> cm3/10s: (27.70...97.40)  
2nd speed 1/min: 2400  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
Overflow : 55.60...152.90  
quantity> cm3/10s: (40.60...167.90)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 2950  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 0.00...2.00  
> 1000S.: (0.00...2.00)  
2nd speed 1/min: 2625  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet Volt: 12.0  
Del. quantity cm3/: 9.50...17.5  
> 1000S.: (7.50...19.5)  
3rd speed 1/min: 2550  
KSB/AFB  
valve > Volt: -  
Shutoff

electromagnet>Volt: 12.0  
 Del. quantity cm3/: 17.0...23.0  
 > 1000S.: (15.5...24.5)  
 4th speed 1/min: 2400  
 KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 28.3...30.3  
 > 1000S.: (27.3...31.3)  
 5th speed 1/min: 1500  
 KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 28.8...29.2  
 > 1000S.: (27.3...31.7)  
 6th speed 1/min: 1000  
 KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 27.8...30.8  
 > 1000S.: (27.0...31.6)  
 7th speed 1/min: 750  
 KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 26.9...29.9  
 > 1000S.: (26.1...30.7)  
 8th speed 1/min: 450  
 KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 29.5...33.5  
 > 1000S.: (28.7...34.3)

Electr. shutoff:

1st speed 1/min: 425  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)

Shutoff  
 electromagnet>volt: -  
 KSB/AFB  
 valve > Volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450  
 KSB/AFB  
 valve > Volt: -

Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 7.00...9.0  
 > 1000S.: (4.0...12.0)

High Idle:

1st speed 1/mi: 525  
 KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 12.0...14.00  
 > 1000S.: (9.0...17.0)

Rest delivery:

1st speed 1/min: 500  
 KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 2.5...3.5  
 > 1000S.: (0.2...5.8)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1200  
 Inj.-qty. cm3/ : -8.4...10.4 "  
 difference> 1000S.: -  
 KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet>Volt: 12.0  
 2nd speed 1/min: 1200  
 Inj.-qty. cm3/: 2.0...8.0 Z'  
 difference> 1000S.: -

KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet Volt: 12.0  
 3rd speed 1/min: 1200  
 Charge press. hPa: ALFB  
 Inj.-qty. cm3/: 2.0...8.0 Z\*  
 difference> 1000S.: -  
 KSB/AFB  
 valve > Volt: 12.0  
 Shutoff  
 electromagnet>Volt: 12.0

TD-travel dif.measurement:

correttore anticipo iniezione (SV):  
 1st speed 1/min: 1200  
 TD-travel : -0.6...1.4 '  
 difference> mm: -  
 KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet>Volt: 12.0

2nd speed 1/min: 1200  
Charge press. hPa: ALFB  
TD-travel : 0.0...0.6 Z\*  
difference> mm: -  
KSB/AFB  
valve > Volt: 12.0  
Shutoff  
electromagnet>Volt: 12.0

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1200  
Supply pump-  
pressure > : -0.1...0.3 "  
difference> bar: -  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)  
gaz d'échappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1250  
Charge press. hPa: ARF1  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 19.5...20.5  
> 1000S.: (27.5...22.5)  
2nd speed 1/min: 600  
Charge press. hPa: ARF2  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 9.5...10.5  
> 1000S.: (7.5...12.5)

Automatic starting fuel delivery:

1st speed 1/min: 500  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 24.00...36.00  
> 1000S.: LFG/LL VH-VL

2nd speed 1/min: 200  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 50.0...70.0

> 1000S.: LFG/LL VH-VL

3rd speed 1/min: 275  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 50...70 VH-VL  
> 1000S.: LFG/ERHÖHTER LL

4th speed 1/min: 500  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 26...38 VH-VL  
> 1000S.: LFG/ERHÖHTER LL

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: KOT
MS	mm: 1.6...1.9
Ya	mm: 29.4...33.4
Yb	mm: 63.5...72.5

Ajustement Potentiometer:

Angle for  
pot. > °: 25.0  
Supply voltage  
pot. > volt: 5.0

Remarks:

: ARF1= 3.55 VOLT  
: ARF2 = 1.85 VOLT

Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW  
Edition : 09.08.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/8F2200R574-1  
Type number : 0 460 484 101  
Customer Part-No. :

Customer-specific information  
Customer : VW

Engine : 1.9 L SD

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 111

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Start of delivery block  
Piston stroke mm: 0.9  
> mm: ±0.02(0.06)

Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250  
Setting value mm: 5.10...5.50

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250  
Setting value bar: 5.40...6.00  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 33.0...34.0  
Shutoff  
electromagnet>Volt: 12.0  
Dispersion cm<sup>3</sup>/: 2.0  
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 520  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 6.00...8.00  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 8.50...12.50  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 40.00...66.00  
mind> 1000S.: 40.00  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750  
TD travel mm: 3.10...3.90  
> mm: (2.80...4.20)  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1250  
TD travel mm: 5.10...5.50  
> mm: (4.60...6.00)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2000  
TD travel mm: 7.5...8.3

> mm: (7.2...8.6)  
Shutoff  
electromagnet>Volt: 12  
Supply-pump pressure characteristic:  
1st speed 1/min: 750  
Supply-pump  
pressure> bar: 4.00...4.60  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Supply-pump  
pressure> bar: 5.40...6.00  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2000  
Supply-pump  
pressure> bar: 7.30...7.90  
Shutoff  
electromagnet>Volt: 12  
Overflow quantity at overflow valve:  
1st speed 1/min: 750  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...83.40  
quantity> cm<sup>3</sup>/10s: (27.80...97.30)  
2nd speed 1/min: 2200  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...152.90  
quantity> cm<sup>3</sup>/10s: (41.70...152.90)  
Delivery-quant. and breakaway char.:  
2nd speed 1/min: 2675  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
3rd speed 1/min: 2525  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 8.50...12.5  
> 1000s.: (6.50...14.5)  
4th speed 1/min: 2400  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 22.0...32.0  
> 1000s.: (21.0...33.0)  
5th speed 1/min: 2200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 34.0...35.00  
> 1000s.: (31.8...37.20)  
6th speed 1/min: 1250  
Shutoff

electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 33.0...34.0  
> 1000s.: (31.3...35.7)  
7th speed 1/min: 750  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 32.5...35.5  
> 1000s.: (31.0...37.0)  
8th speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 34.5...40.5  
> 1000s.: (32.0...43.0)

#### Electr. shutoff:

1st speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

#### Damper set qty.:

#### LFG-setting:

#### Idle delivery:

1st speed 1/min: 450  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 8.50...10.5  
> 1000s.: (5.50...13.50)

#### High Idle:

1st speed 1/mi: 525  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 8.50...10.50  
> 1000s.: (5.50...13.50)

#### Rest delivery:

1st speed 1/min: 525  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 6.00...8.00  
> 1000s.: (3.0...11.0)

#### Automatic starting fuel delivery:

1st speed 1/min: 180  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 40.00...74.00  
> 1000s.: (40.00...74.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 40.00...66.00  
> 1000S.: (40.00...66.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.7
MS	mm: 1.1...1.5
Ya	mm: 36.0...40.0
Yb	mm: 47.7...57.3

Remarks:

⋮

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
Edition : 08.08.95
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE5/8F2100L545-2
Type number : 0 460 485 029
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 2.4 L SDT4/SG

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 000

Opening
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.20...2.60
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.70...6.30
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
> 1000S.: 36.0...37.0
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540
Del. quantity cm3/
> 1000S.: 6.50...7.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
Del. quantity cm3/
> 1000S.: 10.0...14.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...85.00
mind> 1000S.: 35.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm3/
difference> 1000S.: -3.50...9.50 \*
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1500
TD-travel
difference> mm: -0.3...0.5 \*
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1790  
 TD travel mm: 5.00...5.80  
 > mm: (4.70...6.10)  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1250  
 TD travel mm: 2.20...2.60  
 > mm: (1.70...3.10)  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 1000  
 TD travel mm: 0.70...1.50  
 > mm: (0.40...1.80)  
 Shutoff  
 electromagnet>Volt: 12  
  
 Supply-pump pressure characteristic:  
  
 1st speed 1/min: 1000  
 Supply-pump  
 pressure> bar: 5.0...5.6  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12.0  
 2nd speed 1/min: 1250  
 Supply-pump  
 pressure> bar: 5.70...6.30  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1790  
 Supply-pump  
 pressure> bar: 7.20...7.80  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12  
  
 Overflow quantity at overflow valve:  
  
 1st speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.70...83.40  
 quantity> cm3/10s: (27.80...97.30)  
 2nd speed 1/min: 2100  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.60...152.90  
 quantity> cm3/10s: (40.60...167.90)  
  
 Delivery-quant. and breakaway char.:  
  
 2nd speed 1/min: 2600  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...6.00  
 > 1000S.: (0.00...6.00)  
 5th speed 1/min: 2400  
 Shutoff

electromagnet>Volt: 12  
 Del. quantity cm3/: 10.00...14.00  
 > 1000S.: (8.00...16.00)  
 8th speed 1/min: 2300  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 17.00...27.00  
 > 1000S.: (26.00...28.00)  
 9th speed 1/min: 2100  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 30.00...32.00  
 > 1000S.: (28.80...33.20)  
 12th speed 1/min: 1250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 36.00...37.00  
 > 1000S.: (34.3...38.7)  
 20th speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 32.30...35.30  
 > 1000S.: (30.80...36.80)

Electr. shutoff:

1st speed 1/min: 415  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 415  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 7.00...9.00  
 > 1000S.: (4.00...12.00)

Rest delivery:

1st speed 1/min: 540  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 6.50...7.50  
 > 1000S.: (5.00...9.00)  
 2nd speed 1/min: 490  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 6.80...8.80  
 > 1000S.: (5.30...10.30)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1500  
Inj.-qty. cm<sup>3</sup>/ : -6.0...8.0 "  
difference> 1000S.: -  
Shutoff  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1500  
Inj.-qty. cm<sup>3</sup>/: 0.0...3.0 z'  
Shutoff  
electromagnet Volt: 12.0

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1500  
TD-travel : -1.2...1.6 '  
difference> mm: -  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1500  
Supply pump-  
pressure > : -0.1...0.3 "  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1500  
Supply pump-  
pressure > : -0.8...1.2 '  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12.0

Automatic starting fuel delivery:

1st speed 1/min: 180  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 35.00...85.00  
> 1000S.: -

2nd speed 1/min: 380  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 17.00...37.00  
> 1000S.: (17.00...37.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 35.00...85.00  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.2...3.4  
KF mm: 5.8  
MS mm: 1.2...1.6  
Ya mm: 32.8...34.8  
Yb mm: 60.5...71.5

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA  
Edition : 09.04.92  
replaces : 01.85  
Calibrating oil : ISO 4113  
  
Injection pump : VE4/9F2150L31-1  
Type number : D 460 494 133

Customer-specific information  
Customer : MOTORI VM

Engine : HR 488 HT

## TEST BENCH REQUIREMENTS

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.35

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 688 901 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 1900  
Charge press. hPa: 800  
Setting value mm: 6,40...6,80  
Shutoff  
electromagnet>Volt: 12.0

## Supply-pump pressure

Speed 1/min: 1900  
Charge press hPa: 800

M12

Setting value bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12.0

## Full-load del. with charge press.:

Speed 1/min: 1600  
Charge press. hPa: 800  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 46.50...47.50  
Shutoff  
electromagnet>Volt: 12.0  
Dispersion cm<sup>3</sup>/: 3,0  
> 1000S.: -

## Full-load del. w/out charge press.:

Speed 1/min: 600  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 31.50...32.50  
Shutoff  
electromagnet>Volt: 12.0

## Low-idle speed regulation

Speed 1/min: 400  
Charge press hPa: -  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 8.00...12.00  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 3.0  
> 1000S.: -

## Full-load speed regulation

Speed 1/min: 2300  
Charge press hPa: 800  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 27.50...33.50  
Shutoff  
electromagnet>Volt: 12.0

## Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm<sup>3</sup>/: -  
mind> 1000S.: 44.0  
Shutoff  
electromagnet>Volt: 12.0

Inspection-pump test specifications  
Test specifications in parentheses

## Timing-device characteristic:

1st speed 1/min: 1000  
Charge press hPa: 800  
TD travel mm: 1.30...2.10

> mm: (1.00...2.40)  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1900  
Charge press hPa: 800  
TD travel mm: 6.40...6.80  
> mm: (5.90...7.30)  
Shutoff  
electromagnet>Volt: 12.0  
3rd speed 1/min: 2150  
Charge press hPa: 800  
TD travel mm: 7.50...8.30  
> mm: (7.20...8.60)  
Shutoff  
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 400  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 2.00...2.60  
Shutoff  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1900  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12.0  
3rd speed 1/min: 2150  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 6.30...6.90  
Shutoff  
electromagnet>Volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12.0  
Overflow : 42.00...83.00  
quantity> cm<sup>3</sup>/10s: (27.00...98.00)  
2nd speed 1/min: 2150  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12.0  
Overflow : 55.00...138.00  
quantity> cm<sup>3</sup>/10s: (40.00...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600  
Charge-air pressure-setting  
point> hPa: 270  
LDA-stroke mm: 3.8  
Shutoff  
electromagnet>Volt: 12.0

Del. quantity cm<sup>3</sup>/: 39.30...41.30  
> 1000S.: (37.60...42.00)  
2nd speed 1/min: 2600  
Charge press. hPa: 800  
Shutoff  
electromagnet Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 0.0...2.0  
> 1000S.: -  
3rd speed 1/min: 2450  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 0.0...10.0  
> 1000S.: -  
4th speed 1/min: 2300  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 27.50...33.50  
> 1000S.: (26.50...34.50)  
5th speed 1/min: 2150  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 40.00...43.00  
> 1000S.: (39.2...43.80)  
6th speed 1/min: 1600  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 46.50...47.50  
> 1000S.: (44.70...49.30)  
7th speed 1/min: 600  
Charge press. hPa: 270  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 39.30...41.30  
> 1000S.: (37.60...42.00)  
8th speed 1/min: 600  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 31.50...32.50  
> 1000S.: (29.80...34.20)

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 8.00...12.0  
> 1000S.: (6.00...14.00)  
Dispersion cm<sup>3</sup>/: 3.0  
> 1000S.: -  
2nd speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 0.0...6.00

> 1000s.: -  
3rd speed 1/min: 800  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 0.0....2.0  
> 1000s.: -

Automatic starting fuel delivery:

1st speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 44.00...  
> 1000s.: -

2nd speed 1/min: 450  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 0.0...43.0  
> 1000s.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.3
KF	mm: 5.7...5.9
MS	mm: 0.7...0.9
SVS max.	mm: 5.6
LDA stroke	mm: 3.8
XK	mm: 20.2...22.2
XL	mm: 8.7...12.1

Remarks: : 0 (6.00...14.00) 3.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA
Edition : 06.95
replaces : 04.92
Calibrating oil : ISO 4113
Injection pump : VE4/9F2150L31-1
Type number : 0 460 494 133

Customer-specific information
Customer : MOTORI VM

Engine : HR 488 HT

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly> : 1 688 901 000

Opening
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 840

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1900
Charge press. hPa: 800
Setting value mm: 6,40...6,80
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1900

Charge press hPa: 800
Setting value bar: 5.70...6.30
Shutoff
electromagnet>Volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1600
Charge press. hPa: 800
Del. quantity cm3/
> 1000S.: 46.50...47.50
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 3,0
> 1000S.: -

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
> 1000S.: 31.50...32.50
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 400
Charge press hPa: -
Del. quantity cm3/
> 1000S.: 8.00...12.00
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 3.0
> 1000S.: -

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 800
Del. quantity cm3/
> 1000S.: 27.50...33.50
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/: -
mind> 1000S.: 44.0
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press hPa: 800

TD travel mm: 1.30...2.10  
> mm: (1.00...2.40)  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1900  
Charge press hPa: 800  
TD travel mm: 6.40...6,80  
> mm: (5.90...7.30)  
Shutoff  
electromagnet>Volt: 12.0  
3rd speed 1/min: 2150  
Charge press hPa: 800  
TD travel mm: 7.50...8.30  
> mm: (7.20...8.60)  
Shutoff  
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 400  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 2.00...2.60  
Shutoff  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1900  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12.0  
3rd speed 1/min: 2150  
Charge press. hPa: 800  
Supply-pump  
pressure> bar: 6.30...6.90  
Shutoff  
electromagnet>Volt: 12.0

Overlow quantity at overflow valve:

1st speed 1/min: 600  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12.0  
Overflow : 42.00...83.00  
quantity> cm3/10s: (27.00...98.00)  
2nd speed 1/min: 2150  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12.0  
Overflow : 55.00...138.00  
quantity> cm3/10s: (40.00...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600  
Charge-air pressure-setting  
point> hPa: 270  
LDA-stroke mm: 3.8  
Shutoff

electromagnet>Volt: 12.0  
Del. quantity cm3/: 39.30...41.30  
> 1000s.: (37.60...42.00)  
2nd speed 1/min: 2600  
Charge press. hPa: 800  
Shutoff  
electromagnet Volt: 12.0  
Del. quantity cm3/: 0.0...2.0  
> 1000s.: -  
3rd speed 1/min: 2450  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 0.0...10.0  
> 1000s.: -  
4th speed 1/min: 2300  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 27.50...33.50  
> 1000s.: (26.50...34.50)  
5th speed 1/min: 2150  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 40.00...43.00  
> 1000s.: (39.2...43.80)  
6th speed 1/min: 160  
Charge press. hPa: 800  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 46.50...47.50  
> 1000s.: (44.70...49.30)  
7th speed 1/min: 600  
Charge press. hPa: 270  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 39.30...41.30  
> 1000s.: (37.60...42.00)  
8th speed 1/min: 600  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 31.50...32.50  
> 1000s.: (29.80...34.20)

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm3/: 8.00...12.0  
> 1000s.: (6.00...14.00)  
Dispersion cm3/: 3.0  
> 1000s.: -  
2nd speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12.0



Del. quantity cm<sup>3</sup>/: 0.0...6.00  
> 1000s.: -  
3rd speed 1/min: 800  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 0.0....2.0  
> 1000s.: -

Automatic starting fuel delivery:

1st speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 44.00...  
> 1000s.: -

2nd speed 1/min: 450  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 0.0...43.0  
> 1000s.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.3
KF	mm: 5.7...5.9
MS	mm: 0.7...0.9
SVS max.	mm: 5.6
LDA stroke	mm: 3.8
XK	mm: 20.2...22.2
XL	mm: 8.7...12.1

Remarks:

: 0 (6.00...14.00) 3.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2250R513
Type number : 0 460 494 341
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 TF-Y

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Indicator setting
Piston stroke> mm: 0.3
Outlet> : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.40...3.80

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.30...5.90
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
> 1000s.: 53.50...54.50
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.0
> 1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000s.: 36.50...37.50
Shutoff
electromagnet>Volt: 12

Residual-Delivery Setting

Speed 1/min: 490
Del. quantity cm3/
> 1000s.: 8.00...9.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm3/
> 1000s.: 12.00...16.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm3/: 37.00...67.00
mind> 1000s.: 37.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/

difference> 1000s.: -11.0...15.0 \*  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1250  
TD-travel  
difference> mm: -0.9...1.1 \*  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000  
Charge press hPa: 1000  
TD travel mm: 6.10...6.90  
> mm: (5.80...7.20)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1250  
Charge press hPa: 1000  
TD travel mm: 3.40...3.80  
> mm: (2.90...4.30)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 750  
Charge press hPa: 1000  
TD travel mm: 1.10...1.90  
> mm: (0.80...2.20)

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.00...4.60  
> bar: -

Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 5.30...5.90  
> bar: -

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2000  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 7.20...7.80  
> bar: -

Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.10  
quantity> cm<sup>3</sup>/10s: (26.70...101.10)  
2nd speed 1/min: 2150  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750  
Charge-air pressure-setting  
point> hPa: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 45.50...46.50  
> 1000s.: (43.00...49.00)

2nd speed 1/min: 2750  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...6.00  
> 1000s.: (0.00...6.00)

5th speed 1/min: 2575  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 12.00...16.00  
> 1000s.: (10.00...18.00)

8th speed 1/min: 2375  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 34.00...44.00  
> 1000s.: (33.00...45.00)

9th speed 1/min: 2150  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 49.10...51.10  
> 1000s.: (47.90...52.30)

10th speed 1/min: 2000  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 51.00...53.00  
> 1000s.: (49.80...54.20)

12th speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 53.50...54.50  
> 1000s.: (51.8...56.2)

18th speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 36.50...37.50  
> 1000S.: (34.00...40.00)  
20th speed 1/min: 500  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 46.80...49.80  
> 1000S.: (45.30...51.30)

Electr. shutoff:

1st speed 1/min: 440  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 440  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 15.00...17.00  
> 1000S.: (12.00...20.00)

High Idle:

1st speed 1/mi: 490  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 15.00...17.00  
> 1000S.: (12.00...20.00)

Rest delivery:

1st speed 1/min: 490  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 8.00...9.00  
> 1000S.: (6.50...10.50)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1250  
Inj.-qty. cm<sup>3</sup>/ : 2.0...11.0 Z"  
difference> 1000S.: -  
Shutoff  
electromagnet>Volt: 12

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1250  
TD-travel : -1.40...3.0 "  
difference> mm: -  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1250  
Supply pump-  
pressure > : -0.1...0.3 "  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12

Automatic starting fuel delivery:

2nd speed 1/min: 380  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 25.00...45.00  
> 1000S.: (25.00...45.00)

3rd speed 1/min: 200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 50.00...56.00  
> 1000S.: (45.50...60.50)

4th speed 1/min: 150  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 37.00...67.00  
> 1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.2...3.4  
KF mm: KOT  
MS mm: 1.1...1.5  
Ya mm: 28.8...32.8  
Yb mm: 69.2...80.8

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control

lever on drive end

$Y_b$  = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

$Z$  = Absolute delivery



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 08.08.95
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2050R452-2
Type number : 0 460 494 351
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : J8S-758

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1125
Setting value mm: 2.60...3.00
Shutoff
electromagnet>Volt: 12.0

Supply-pump pressure

Speed 1/min: 1125
Setting value bar: 4.20...4.80
Shutoff
electromagnet>Volt: 12.0

Full-load del. w/out charge press.:

Speed 1/min: 1125
Del. quantity cm3/
> 1000S.: 35.2...36.2
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 2.00...6.00
Shutoff
electromagnet Volt: 12.0

Full-load speed regulation

Speed 1/min: 2200
Del. quantity cm3/
> 1000S.: 17...23.00
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 52.00...92.00
mind> 1000S.: 52.00
Shutoff
electromagnet>Volt: 12.0

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1125
Inj.-qty. cm3/
difference> 1000S.: -11.0...15.0 \*
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1125
TD-travel
difference> mm: - 0.5...0.7 \*
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800  
TD travel mm: 0.7...1.5  
> mm: (0.4...1.8)  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1125  
TD travel mm: 2.6...3.0  
> mm: (2.1...3.5)  
Shutoff  
electromagnet>Volt: 12.0  
3rd speed 1/min: 2000  
TD travel mm: 7.10...7.90  
> mm: (6.80...8.20)  
Shutoff  
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 800  
Supply-pump  
pressure> bar: 3.10...3.70  
> bar: -  
Shutoff  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1125  
Supply-pump  
pressure> bar: 4.20...4.80  
> bar: -  
Shutoff  
electromagnet>Volt: 12.0  
3rd speed 1/min: 2000  
Supply-pump  
pressure> bar: 6.30...7.10  
> bar: -  
Shutoff  
electromagnet>Volt: 12.0

Overlow quantity at overflow valve:

1st speed 1/min: 800  
Shutoff  
electromagnet>Volt: 12.0  
Overflow : 41.00...83.30  
quantity> cm<sup>3</sup>/10s: (26.00...98.30)  
2nd speed 1/min: 2200  
Shutoff  
electromagnet>Volt: 12.0  
Overflow : 55.30...138.70  
quantity> cm<sup>3</sup>/10s: (40.30...153.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 2450  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 0.0...5.0  
> 1000S.: -  
2nd speed 1/min: 2350  
Shutoff  
electromagnet Volt: 12.0

Del. quantity cm<sup>3</sup>/: 2.50...10.5  
> 1000S.: (1.5...11.5)  
3rd speed 1/min: 2200  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 17.0...23.0  
> 1000S.: (16.0...24.0)  
4th speed 1/min: 2000  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 33.8...35.8  
> 1000S.: (32.5...37.1)  
5th speed 1/min: 1750  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 33.90...35.90  
> 1000S.: (32.60...37.20)  
6th speed 1/min: 1125  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 35.2...36.2  
> 1000S.: (33.4...38.0)  
7th speed 1/min: 800  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 32.7...35.7  
> 1000S.: (32 2...36.5)

Electr. shutoff:

1st speed 1/min: 400  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: -  
Shutoff  
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 400  
Shutoff  
electromagnet Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 6.00...10.00  
> 1000S.: (4.00...12.00)

High Idle:

1st speed 1/mi: 500  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 8.5...12.5  
> 1000S.: (6.5...14.5)

Rest delivery:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 2.00...6.00  
> 1000S.: -

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1125  
Charge press. hPa: -  
Inj.-qty. cm<sup>3</sup>/ : -10.0..12.0 "  
difference> 1000S.: -

Shutoff  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1125  
Charge press. hPa: -  
Inj.-qty. cm<sup>3</sup>/: 2.0...8.0 Z'  
difference> 1000S.: -  
Shutoff  
electromagnet Volt: 12.0

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1125  
TD-travel : - 1.0...1.6 '  
difference> mm: -  
Shutoff  
electromagnet>Volt: 12.0

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1125  
Supply pump-  
pressure > : - 0.1...0.3 "  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)  
gaz d'échappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1000  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 23.5...24.5  
> 1000S.: (21.5...26.5)

Automatic starting fuel delivery:

1st speed 1/min: 310  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 25.00...45.00  
> 1000S.: -

2nd speed 1/min: 210  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 45.00...85.00  
> 1000S.: -

3rd speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 52.0...92.0  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.2...3.4  
KF mm: 5.3...5.7  
MS mm: 1.1...1.3  
Ya mm: 37.8...41.8  
Yb mm: 41.9...52.1

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

Z = Absolute delivery

On initial measurement, screw in  
residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting  
screw 1 mm after setting pump.



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : NIS
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2250R577
Type number : 0 460 494 354
Customer Part-No. :

Customer-specific information
Customer : NISSAN-MISA

Engine : GX-3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 3.00...3.40
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Setting value bar: 5.60...6.20
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 2150
Del. quantity cm3/
> 1000S.: 44.00...45.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.5
> 1000S.: (3.5)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 6.5...10.5
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2500
Del. quantity cm3/
> 1000S.: 12.00...18.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind> 1000S.: 45.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2150
TD travel mm: 8.8...9.6
> mm: (8.5...9.9)
electromagnet>Volt: 12.0
2nd speed 1/min: 1200
TD travel mm: 3.00...3.40
> mm: (2.50...3.90)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 900
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2150

Supply-pump  
 pressure> bar: 8.20...8.80  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1200  
 Supply-pump  
 pressure> bar: 5.60...6.20  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 900  
 Supply-pump  
 pressure> bar: 4.70...5.30  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12  
  
 Overlow quantity at overflow valve:  
  
 1st speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.70...86.10  
 quantity> cm3/10s: (26.70...101.10)  
 2nd speed 1/min: 2150  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.60...139.00  
 quantity> cm3/10s: (40.60...154.00)  
  
 Delivery-quant. and breakaway char.:  
  
 1st speed 1/min: 2700  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.0...5.0  
 > 1000S.: -  
 2nd speed 1/min: 2500  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 12.0...18.0  
 > 1000S.: (10.5...19.5)  
 3rd speed 1/min: 2350  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 29.3...37.3  
 > 1000S.: (27.8...38.8)  
 4th speed 1/min: 2150  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 44.0...45.0  
 > 1000S.: (43.2...45.8)  
 5th speed 1/min: 1800  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 42.60...45.60  
 > 1000S.: (41.60...46.60)  
 6th speed 1/min: 1200

Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 41.3...44.3  
 > 1000S.: (40.3...45.3)  
 7th speed 1/min: 900  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 40.5...43.5  
 > 1000S.: (39.5...44.5)  
 8th speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 39.5...42.5  
 > 1000S.: (38.5...43.5)

Electr. shutoff:

1st speed 1/min: 350  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 6.5...10.50  
 > 1000S.: (4.50...12.5)  
 2nd speed 1/min: 800  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 0.00...5.00  
 > 1000S.: -  
 3rd speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -  
 4th speed 1/min: 250  
 Shutoff  
 electromagnet Volt: 12.0  
 Del. quantity cm3/: 27.0...33.0  
 > 1000S.: (25.0...35.0)

High Idle:

1st speed 1/mi: 500  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 7.5...10.5  
 > 1000S.: TLA 4.7 MM

Automatic starting fuel delivery:

1st speed 1/min: 270  
 Shutoff

electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 50.0...  
> 1000S.: -

2nd speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 00.0...50.0  
> 1000S.: -

3rd speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 45.0...75.0  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.2...5.6
MS	mm: 1.1...1.3
TLA-A	mm: 4.7
XK	mm: KSB-HEBEL
XL	mm: 4.3 MM
Ya	mm: 35.1...39.1
Yb	mm: 59.9...71.1

Ajustement Potentiometer:

Angle for  
pot. > °: 25  
Supply voltage  
pot. > volt: 5.0  
Output volt  
pot. > volt: 0.8

Remarks:

⋮  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : NIS
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2250R577-1
Type number : 0 460 494 355
Customer Part-No. :

Customer-specific information
Customer : NISSAN-MISA

Engine : GX-3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 3.00...3.40
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Setting value bar: 5.60...6.20
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 2150
Del. quantity cm3/
> 1000S.: 44.00...45.00
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.5
> 1000S.: (3.5)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 6.5...10.5
Shutoff
electromagnet>Volt: 12.0
Del. quantity cm3/: 2.5
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2500
Del. quantity cm3/
> 1000S.: 12.00...18.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind> 1000S.: 45.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2150
TD travel mm: 8.8...9.6
> mm: (8.5...9.9)
electromagnet>Volt: 12.0
2nd speed 1/min: 1200
TD travel mm: 3.00...3.40
> mm: (2.50...3.90)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 900
TD travel mm: 0.80...1.60
> mm: (0.50...1.90)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2150

Supply-pump  
 pressure> bar: 8.20...8.80  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1200  
 Supply-pump  
 pressure> bar: 5.60...6.20  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 900  
 Supply-pump  
 pressure> bar: 4.70...5.30  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12

Overlow quantity at overflow valve:

1st speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.70...86.10  
 quantity> cm3/10s: (26.70...101.10)  
 2nd speed 1/min: 2150  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.60...139.00  
 quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2700  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.0...5.0  
 > 1000S.: -  
 2nd speed 1/min: 2500  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 12.0...18.0  
 > 1000S.: (10.5...19.5)  
 3rd speed 1/min: 2350  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 29.3...37.3  
 > 1000S.: (27.8...38.8)  
 4th speed 1/min: 2150  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 44.0...45.0  
 > 1000S.: (43.2...45.8)  
 5th speed 1/min: 1800  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 42.60...45.60  
 > 1000S.: (41.60...46.60)  
 6th speed 1/min: 1200

Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 41.3...44.3  
 > 1000S.: (40.3...45.3)  
 7th speed 1/min: 900  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 40.5...43.5  
 > 1000S.: (39.5...44.5)  
 8th speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 39.5...42.5  
 > 1000S.: (38.5...43.5)

Electr. shutoff:

1st speed 1/min: 350  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 6.5...10.50  
 > 1000S.: (4.50...12.5)  
 2nd speed 1/min: 800  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 0.00...5.00  
 > 1000S.: -  
 3rd speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -  
 4th speed 1/min: 250  
 Shutoff  
 electromagnet Volt: 12.0  
 Del. quantity cm3/: 27.0...33.0  
 > 1000S.: (25.0...35.0)

High Idle:

1st speed 1/mi: 500  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 7.5...10.5  
 > 1000S.: TLA 4.7 MM

Automatic starting fuel delivery:

1st speed 1/min: 270  
 Shutoff

electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 50.0...  
> 1000s.: -

2nd speed 1/min: 400  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 00.0...50.0  
> 1000s.: -

3rd speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 45.0...75.0  
> 1000s.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.2...5.6
MS	mm: 1.1...1.3
TLA-A	mm: 4.7
XK	mm: KSB-HEBEL
XL	mm: 4.3 MM
Ya	mm: 35.1...39.1
Yb	mm: 59.9...71.1

Ajustement Potentiometer:

Angle for  
pot. > °: 25  
Supply voltage  
pot. > volt: 5.0  
Output volt  
pot. > volt: 0.8

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
Edition : 04.08.95
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2100R471-1
Type number : 0 460 494 356
Customer Part-No. :

Customer-specific information
Customer : VW 1.9 L

Engine : UD T4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 111

Opening
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.70...4.10
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.30...5.90
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
> 1000S.: 39.50...40.50
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 2.5
> 1000S.: (3.5)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
> 1000S.: 5.0...6.0
Shutoff
electromagnet Volt: 12.0
Dispersion cm3/: 2.0
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 240.
Del. quantity cm3/
> 1000S.: 13.00...17.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...90.00
mind> 1000S.: 40.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference> 1000S.: - 7.0...13.0 \*
Shutoff
electromagnet>Volt: 12.0
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: - 0.9...1.1 \*
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1250  
 TD travel mm: 3.7...4.1  
 > mm: (3.1...4.7)  
 electromagnet>Volt: 12.0  
 2nd speed 1/min: 1700  
 TD travel mm: 5.60...6.40  
 > mm: (5.20...6.80)  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 750  
 TD travel mm: 1.10...1.90  
 > mm: (0.70...2.30)  
 Shutoff  
 electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1250  
 Supply-pump pressure> bar: 5.30...5.90  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1700  
 Supply-pump pressure> bar: 6.60...7.20  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 750  
 Supply-pump pressure> bar: 3.80...4.40  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow quantity> cm3/10s: 41.70...86.10  
 2nd speed 1/min: 1850  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow quantity> cm3/10s: 55.60...139.00

Delivery-quant. and breakaway char.:

1st speed 1/min: 1650  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.0...3.0  
 > 1000S.: -  
 2nd speed 1/min: 2400

Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 13.0...17.0  
 > 1000S.: (11.0...19.0)  
 3rd speed 1/min: 2250  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 24.0...34.0  
 > 1000S.: (23.0...35.0)  
 4th speed 1/min: 1850  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 40.0...42.0  
 > 1000S.: (38.8...43.2)  
 5th speed 1/min: 1250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 39.50...40.50  
 > 1000S.: (37.80...42.20)  
 6th speed 1/min: 750  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 37.0...40.0  
 > 1000S.: (35.5...41.5)  
 7th speed 1/min: 450  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 36...42.0  
 > 1000S.: (33.5...44.5)

Electr. shutoff:

1st speed 1/min: 425  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 425  
 Shutoff  
 electromagnet Volt: 12.0  
 Del. quantity cm3/: 5.5...7.5  
 > 1000S.: (2.5...10.5)

High Idle:

1st speed 1/mi: 500  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 5.5...7.5  
 > 1000S.: (2.5...10.5)



Rest delivery:

1st speed 1/min: 550  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 5.0...6.0  
> 1000S.: (3.5...7.5)  
2nd speed 1/min: 515  
Shutoff  
electromagnet Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 5.5...7.5  
> 1000S.: (4.0...9.0)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1250  
Inj.-qty. cm<sup>3</sup>/ : 0.0...3.0 Z "  
difference> 1000S.: -  
Shutoff  
electromagnet>Volt: 12.0

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1250  
TD-travel : - 1.3...1.7 "  
difference> mm: - (0.9...2.1)  
Shutoff  
electromagnet>Volt: 12.0

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1250  
Supply pump-  
pressure > : - 0.7...1.1 "  
difference> bar: - (0.5...1.3)  
Shutoff  
electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)  
gaz d'échappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1000  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 21.0...23.0 \*  
> 1000S.: (19.0...25.0)

Automatic starting fuel delivery:

1st speed 1/min: 380  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 25.0...45.0  
> 1000S.: -

2nd speed 1/min: 180  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 40.0...90.0  
> 1000S.: -

3rd speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 40.0...90.0  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.2...3.4  
KF mm: 5.1...5.5  
MS mm: 1.2...1.4  
XK mm: MIKROSCH.  
XL mm: 0.8...3.0 \*  
Ya mm: 20.0...22.0  
Yb mm: 61...72.5

Remarks:

:  
:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

On initial measurement, screw in  
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out  
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 07.08.95
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2400R581
Type number : 0 460 494 357
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : G8T - 752

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.30...2.70
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.90...6.50
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
> 1000S.: 36.9...37.9
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 3.00...7.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm3/
> 1000S.: 20...26.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind> 1000S.: 45.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference> 1000S.: -7.40...11.40 \*
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: -0.7...0.9 \*
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000  
TD travel mm: 6.00...6.80  
> mm: (5.80...7.00)

KSB/AFB valve > Volt: -

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1250  
TD travel mm: 2.30...2.70  
> mm: (2.00...3.00)

KSB/AFB valve > Volt: -

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1000  
TD travel mm: 0.60...1.40  
> mm: (0.40...1.60)

KSB/AFB valve > Volt: -

Shutoff  
electromagnet>Volt: 12  
9th speed 1/min: 750  
TD travel mm: 0.00...2.20  
> mm: (0.20...2.20)

KSB/AFB valve > Volt: 12.0

Shutoff  
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 750  
Supply-pump pressure> bar: 4.40...5.00  
> bar: -

Shutoff  
electromagnet>Volt: 12

2nd speed 1/min: 1250  
Supply-pump pressure> bar: 5.90...6.50  
> bar: -

Shutoff  
electromagnet>Volt: 12

3rd speed 1/min: 2000  
Supply-pump pressure> bar: 7.90...8.50  
> bar: -

Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750  
Shutoff  
electromagnet>Volt: 12  
Overflow quantity> cm<sup>3</sup>/10s: 41.70...86.10  
(26.70...101.10)

2nd speed 1/min: 2300  
Shutoff

electromagnet>Volt: 12

Overflow quantity> cm<sup>3</sup>/10s: 55.60...139.00  
(40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2800  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...5.00  
> 1000s.: (0.00...5.00)

5th speed 1/min: 2600  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 20.00...26.00  
> 1000s.: (19.00...27.00)

8th speed 1/min: 2500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 31.50...39.50  
> 1000s.: (30.50...40.50)

9th speed 1/min: 2300  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 40.00...42.00  
> 1000s.: (38.70...43.70)

10th speed 1/min: 2000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 39.30...41.30  
> 1000s.: (38.00...42.60)

12th speed 1/min: 1250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 36.90...37.90  
> 1000s.: (35.1...39.7)

15th speed 1/min: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 36.20...39.20  
> 1000s.: (35.40...40.00)

20th speed 1/min: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 35.00...38.00  
> 1000s.: (34.20...38.80)

Electr. shutoff:

1st speed 1/min: 385  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000s.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 385  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 12.0...16.0  
> 1000S.: (10.0...18.0)

High Idle:

1st speed 1/mi: 435  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 10.0...14.0  
> 1000S.: (8.00...16.00)

Rest delivery:

1st speed 1/min: 450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.00...7.00  
> 1000S.: (1.00...9.00)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1250  
Inj.-qty. cm3/ : -6.1...8.1 "  
difference> 1000S.: -  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Inj.-qty. cm3/: 2.0...8.0 Z'  
difference> 1000S.: -  
Shutoff  
electromagnet Volt: 12.0

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1250  
TD-travel : -1.0...1.4 '  
difference> mm: -  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1250  
Supply pump-  
pressure > : -0.1...0.3 "  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)

N08

gaz d'échappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 22.50...23.50  
> 1000S.: (20.50...25.50)

Automatic starting fuel delivery:

1st speed 1/min: 200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 45.00...95.00  
> 1000S.: (45.00...95.00)

2nd speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 15.00...45.00  
> 1000S.: (15.00...45.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 45.00...75.00  
> 1000S.: (45.00...75.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8  
KF mm: 4.7...4.9  
MS mm: 0.7...0.9  
Ya mm: 37.2...41.2  
Yb mm: 61.3...69.7

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 07.08.95
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2400R581-1
Type number : 0 460 494 358
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : G8T - 752

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.30...2.70
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.90...6.50
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
> 1000S.: 36.9...37.9
Shutoff
electromagnet>Volt: 12.0
Dispersion cm3/: 2.5
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 450
Del. quantity cm3/
> 1000S.: 3.00...7.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm3/
> 1000S.: 20...26.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind> 1000S.: 45.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference> 1000S.: -7.40...11.40 \*
Shutoff
electromagnet>Volt: 12
TD-travel dif.measurement

1.Speed 1/min: 1250
TD-travel
difference> mm: -0.7...0.9 \*
Shutoff
electromagnet>Volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000  
 TD travel mm: 6.00...6.80  
 > mm: (5.80...7.00)  
 KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1250  
 TD travel mm: 2.30...2.70  
 > mm: (2.00...3.00)  
 KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 1000  
 TD travel mm: 0.60...1.40  
 > mm: (0.40...1.60)  
 KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet>Volt: 12  
 9th speed 1/min: 750  
 TD travel mm: 0.00...2.20  
 > mm: (0.20...2.20)  
 KSB/AFB  
 valve > Volt: 12.0  
 Shutoff  
 electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 750  
 Supply-pump  
 pressure> bar: 4.40...5.00  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1250  
 Supply-pump  
 pressure> bar: 5.90...6.50  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 2000  
 Supply-pump  
 pressure> bar: 7.90...8.50  
 > bar: -  
 Shutoff  
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.70...86.10  
 quantity> cm<sup>3</sup>/10s: (26.70...101.10)  
 2nd speed 1/min: 2300  
 Shutoff  
 electromagnet>Volt: 12

Overflow : 55.60...139.00  
 quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2800  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm<sup>3</sup>/: 0.00...5.00  
 > 1000S.: (0.00...5.00)  
 5th speed 1/min: 2600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 20.00...26.00  
 > 1000S.: (19.00...27.00)  
 8th speed 1/min: 2500  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 31.50...39.50  
 > 1000S.: (30.50...40.50)  
 9th speed 1/min: 2300  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 40.00...42.00  
 > 1000S.: (38.70...43.70)  
 10th speed 1/min: 2000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 39.30...41.30  
 > 1000S.: (38.00...42.60)  
 12th speed 1/min: 1250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 36.90...37.90  
 > 1000S.: (35.1...39.7)  
 15th speed 1/min: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 36.20...39.20  
 > 1000S.: (35.40...40.00)  
 20th speed 1/min: 750  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 35.00...38.00  
 > 1000S.: (34.20...38.80)

Electr. shutoff:

1st speed 1/min: 385  
 Del. quantity cm<sup>3</sup>/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 385  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 12.0...16.0  
> 1000S.: (10.0...18.0)

High Idle:

1st speed 1/mi: 435  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 10.0...14.0  
> 1000S.: (8.00...16.00)

Rest delivery:

1st speed 1/min: 450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 3.00...7.00  
> 1000S.: (1.00...9.00)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1250  
Inj.-qty. cm<sup>3</sup>/ : -6.1...8.1 "  
difference> 1000S.: -  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Inj.-qty. cm<sup>3</sup>/: 2.0...8.0 Z'  
difference> 1000S.: -  
Shutoff  
electromagnet Volt: 12.0

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):

1st speed 1/min: 1250  
TD-travel : -1.0...1.4 '  
difference> mm: -  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:  
pompa di mandata (FP):

1st speed 1/min: 1250  
Supply pump-  
pressure > : -0.1...0.3 "  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)

gazz d'echappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 22.50...23.50  
> 1000S.: (20.50...25.50)

Automatic starting fuel delivery:

1st speed 1/min: 200  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 45.00...95.00  
> 1000S.: (45.00...95.00)

2nd speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 15.00...45.00  
> 1000S.: (15.00...45.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 45.00...75.00  
> 1000S.: (45.00...75.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8  
KF mm: 4.7...4.9  
MS mm: 0.7...0.9  
Ya mm: 37.2...41.2  
Yb mm: 61.3...69.7

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end



Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN  
Edition : 04.08.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/9F2250R593  
Type number : 0 460 494 359  
Customer Part-No. :

Customer-specific information  
Customer : RENAULT

Engine : G8T-760 CA

Power KW: 81

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 022

Opening  
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Indicator setting  
Piston stroke> mm: 0,74  
Outlet> : C

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

Charge press. hPa: 1000  
Setting value mm: 2.60...3.00  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250  
Charge press hPa: 1000  
Setting value bar: 5.10...5.70  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 58.20...59.20  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 2.0  
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 42.5...43.5  
Shutoff  
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 350  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 19.5...23.5  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 2.5  
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 5.00...9.00  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450  
Charge press hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 27.0...33.0  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 47.50...52.50  
mind> 1000s.: 47.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1250  
Charge press hPa: -  
Inj.-qty. cm<sup>3</sup>/  
difference> 1000s.: - 9.0...13.0 \*  
Shutoff  
electromagnet>Volt: 12.0  
TD-travel dif.measurement

1.Speed 1/min: 1250  
Charge press hPa: -  
TD-travel  
difference> mm: - 0.6...0.8 \*  
Shutoff  
electromagnet>Volt: 12.0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press hPa: 1000  
TD travel mm: 1.50...3.90  
> mm: -  
KSB/AFB  
valve > Volt: 12.0  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 1.50...2.30  
> mm: (1.30...2.50)  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
3rd speed 1/min: 1250  
Charge press hPa: 1000  
TD travel mm: 2.60...3.00  
> mm: (2.30...3.30)  
Timing valve Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
4th speed 1/min: 2150  
Charge press hPa: 1000  
TD travel mm: 5.50...6.30  
> mm: (5.30...6.50)  
Timing valve Volt: -  
Shutoff  
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.30...3.90  
> bar: -  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 5.10...5.70  
> bar: -  
Timing valve Volt: -  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2150  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 6.90...7.50  
> bar: -  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12.0  
Overflow : 50.00...94.40  
quantity> cm<sup>3</sup>/10s: (35.00...109.4)  
2nd speed 1/min: 2150  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12.0  
Overflow : 77.70...161.10  
quantity> cm<sup>3</sup>/10s: (62.70...176.10)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750  
Charge-air pressure-setting  
point> hPa: 300  
LDA-stroke mm: 7.3  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 49.5...50.5  
> 1000s.: (47.7...52.3)  
2nd speed 1/min: 2600  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 0.00...5.00  
> 1000s.: (0.00...5.00)  
3rd speed 1/min: 2550  
Charge press. hPa: 1000  
Shutoff

electromagnet>Volt: 12.0  
 Del. quantity cm3/: 6.5...14.5  
 > 1000S.: (5.50...15.50)  
 4th speed 1/min: 2450  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 27.0...33.0  
 > 1000S.: (26.0...34.0)  
 5th speed 1/min: 2150  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 55.70...58.70  
 > 1000S.: (54.40...59.00)  
 6th speed 1/min: 1250  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 58.2...59.2  
 > 1000S.: (56.4...61.0)  
 7th speed 1/min: 1000  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 58.1...61.1  
 > 1000S.: (57.3...61.9)  
 8th speed 1/min: 500  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 55.70...58.70  
 > 1000S.: (54.90...59.50)  
 9th speed 1/min: 500  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 42.50...43.50  
 > 1000S.: (40.70...45.30)

Electr. shutoff:

1st speed 1/min: 350  
 Charge press. hPa: -  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -  
 Timing valve Volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 350  
 Timing valve Volt: -

Shutoff  
 electromagnet Volt: 12.0  
 Del. quantity cm3/: 19.5...23.5  
 > 1000S.: (17.5...25.5)

High Idle:

1st speed 1/mi: 400  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 17.5...21.5  
 > 1000S.: (15.5...23.5)

Rest delivery:

1st speed 1/min: 450  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 5.0...9.0  
 > 1000S.: -

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1250  
 Charge press. hPa: -  
 Inj.-qty. cm3/ : - 7.5...9.5 "  
 difference> 1000S.: -  
 Shutoff  
 electromagnet>Volt: 12.0  
 2nd speed 1/min: 1250  
 Charge press. hPa: -  
 Inj.-qty. cm3/: 2.0...8.0 Z'  
 difference> 1000S.: -  
 3rd speed 1/min: 1250  
 Charge press. hPa: ALFB  
 Inj.-qty. cm3/: 2.0...8.0 Z\*\*  
 difference> 1000S.: -  
 KSB/AFB  
 valve > Volt: 12.0  
 Shutoff  
 electromagnet>Volt: 12.0

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):

1st speed 1/min: 1250  
 Charge press. hPa: -  
 TD-travel : -0.3...0.9 '  
 difference> mm: -  
 Shutoff

electromagnet>Volt: 12.0  
 2nd speed 1/min: 1250  
 Charge press. hPa: ALFB  
 TD-travel : 0.0...0.6 \*\*  
 difference> mm: -  
 KSB/AFB

valve > Volt: 12.0  
 Shutoff  
 electromagnet>Volt: 12.0

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1250  
Charge press. hPa: -  
Supply pump-  
pressure > : - 0.1...0.3 "  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12.0

Automatic starting fuel delivery:

1st speed 1/min: 200  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 50.00...70.00  
> 1000s.: -

2nd speed 1/min: 300  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 30.00...50.00  
> 1000s.: -

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 47.50...52.50  
> 1000s.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: 6.00
MS	mm: 0.7...1.1
LDA stroke	mm: 7.3
Ya	mm: 37.2...41.2
Yb	mm: 61.3...69.7

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control

lever on distributor-head end

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.

Permissible port/port scatter with  
stop test, mechanical = max. 5.0  
ccm/1000 S.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN  
Edition : 04.08.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/9F2250R593-1  
Type number : 0 460 494 360  
Customer Part-No. :

Customer-specific information  
Customer : RENAULT

Engine : G8T-760 CA

Power KW: 81

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 022

Opening  
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Indicator setting  
Piston stroke> mm: 0,74  
Outlet> : C

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

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Charge press. hPa: 1000  
Setting value mm: 2.60...3.00  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250  
Charge press hPa: 1000  
Setting value bar: 5.10...5.70  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 58.20...59.20  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 2.0  
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 42.5...43.5  
Shutoff  
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 350  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 19.5...23.5  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 2.5  
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 5.00...9.00  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450  
Charge press hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 27.0...33.0  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 47.50...52.50  
mind> 1000S.: 47.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1250  
Charge press hPa: -  
Inj.-qty. cm<sup>3</sup>/  
difference> 1000S.: - 9.0...13.0 \*  
Shutoff  
electromagnet>Volt: 12.0  
TD-travel dif.measurement

1.Speed 1/min: 1250  
Charge press hPa: -  
TD-travel  
difference> mm: - 0.6...0.8 \*  
Shutoff  
electromagnet>Volt: 12.0

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600  
Charge press hPa: 1000  
TD travel mm: 1.50...3.90  
> mm: -  
KSB/AFB  
valve > Volt: 12.0  
electromagnet>Volt: 12.0  
2nd speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 1.50...2.30  
> mm: (1.30...2.50)  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
3rd speed 1/min: 1250  
Charge press hPa: 1000  
TD travel mm: 2.60...3.00  
> mm: (2.30...3.30)  
Timing valve Volt: -  
Shutoff  
electromagnet>Volt: 12.0  
4th speed 1/min: 2150  
Charge press hPa: 1000  
TD travel mm: 5.50...6.30  
> mm: (5.30...6.50)  
Timing valve Volt: -  
Shutoff  
electromagnet>Volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.30...3.90  
> bar: -  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 5.10...5.70  
> bar: -  
Timing valve Volt: -  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2150  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 6.90...7.50  
> bar: -  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12.0  
Overflow : 50.00...94.40  
quantity> cm<sup>3</sup>/10s: (35.00...109.4)  
2nd speed 1/min: 2150  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12.0  
Overflow : 77.70...161.10  
quantity> cm<sup>3</sup>/10s: (62.70...176.10)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750  
Charge-air pressure-setting  
point> hPa: 300  
LDA-stroke mm: 7.3  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 49.5...50.5  
> 1000S.: (47.7...52.3)  
2nd speed 1/min: 2600  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 0.00...5.00  
> 1000S.: (0.00...5.00)  
3rd speed 1/min: 2550  
Charge press. hPa: 1000  
Shutoff

electromagnet>Volt: 12.0  
 Del. quantity cm3/: 6.5...14.5  
 > 1000S.: (5.50...15.50)  
 4th speed 1/min: 2450  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 27.0...33.0  
 > 1000S.: (26.0...34.0)  
 5th speed 1/min: 2150  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 55.70...58.70  
 > 1000S.: (54.40...59.00)  
 6th speed 1/min: 1250  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 58.2...59.2  
 > 1000S.: (56.4...61.0)  
 7th speed 1/min: 1000  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 58.1...61.1  
 > 1000S.: (57.3...61.9)  
 8th speed 1/min: 500  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 55.70...58.70  
 > 1000S.: (54.90...59.50)  
 9th speed 1/min: 500  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 42.50...43.50  
 > 1000S.: (40.70...45.30)

Electr. shutoff:

1st speed 1/min: 350  
 Charge press. hPa: -  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -  
 Timing valve Volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 350  
 Timing valve Volt: -

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Shutoff  
 electromagnet Volt: 12.0  
 Del. quantity cm3/: 19.5...23.5  
 > 1000S.: (17.5...25.5)

High Idle:

1st speed 1/mi: 400  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 17.5...21.5  
 > 1000S.: (15.5...23.5)

Rest delivery:

1st speed 1/min: 450  
 Shutoff  
 electromagnet>Volt: 12.0  
 Del. quantity cm3/: 5.0...9.0  
 > 1000S.: -

Load-dependent start of delivery:  
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250  
 Charge press. hPa: -  
 Inj.-qty. cm3/ : - 7.5...9.5 "  
 difference> 1000S.: -  
 Shutoff  
 electromagnet>Volt: 12.0  
 2nd speed 1/min: 1250  
 Charge press. hPa: -  
 Inj.-qty. cm3/: 2.0...8.0 Δ'  
 difference> 1000S.: -  
 3rd speed 1/min: 1250  
 Charge press. hPa: ALFB  
 Inj.-qty. cm3/: 2.0...8.0 Z\*\*  
 difference> 1000S.: -  
 KSB/AFB  
 valve > Volt: 12.0  
 Shutoff  
 electromagnet>Volt: 12.0

TD-travel dif.measurement:  
 correttore anticipo iniezione (SV):  
 1st speed 1/min: 1250  
 Charge press. hPa: -  
 TD-travel : -0.3...0.9 '  
 difference> mm: -  
 Shutoff  
 electromagnet>Volt: 12.0  
 2nd speed 1/min: 1250  
 Charge press. hPa: ALFB  
 TD-travel : 0.0...0.6 \*\*  
 difference> mm: -  
 KSB/AFB  
 valve > Volt: 12.0  
 Shutoff  
 electromagnet>Volt: 12.0



SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1250  
Charge press. hPa: -  
Supply pump-  
pressure > : - 0.1...0.3 "  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12.0

Automatic starting fuel delivery:

1st speed 1/min: 200  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 50.00...70.00  
> 1000s.: -

2nd speed 1/min: 300  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 30.00...50.00  
> 1000s.: -

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 47.50...52.50  
> 1000s.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: 6.00
MS	mm: 0.7...1.1
LDA stroke	mm: 7.3
Ya	mm: 37.2...41.2
Yb	mm: 61.3...69.7

Remarks:

:  
:

Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control

Lever on distributor-head end

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.

Permissible port/port scatter with  
stop test, mechanical = max. 5.0  
ccm/1000 S.

# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW  
Edition : 07.08.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/9F2300R594  
Type number : 0 460 494 365  
Customer Part-No. :

Customer-specific information  
Customer : VW

Engine : 1,9 l UD B4

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Indicator setting  
Piston stroke> mm: 0.8  
Outlet> : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250  
Charge press. hPa: 750  
Setting value mm: 4.30...4.50

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Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250  
Charge press hPa: 750  
Setting value bar: 5.40...6.00  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 50.00...51.00

Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 2.5  
> 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 450  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 37.2...43.2  
Shutoff  
electromagnet>Volt: 12.0

Residual-Delivery Setting

Speed 1/min: 550  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 7.00...8.00  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600  
Charge press hPa: 750  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 9.00...13.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 32.5...47.5  
mind> 1000S.: 32.5  
Shutoff  
electromagnet>Volt: 12.0

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1250  
Inj.-qty. cm<sup>3</sup>/  
> 1000S.: 32.5

difference> 1000s.: -7.0...11.0 \*  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1250  
TD-travel  
difference> mm: -1.9...2.1 \*  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100  
Charge press hPa: 750  
TD travel mm: 8.00...8.60  
> mm: (7.50...9.10)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1250  
Charge press hPa: 750  
TD travel mm: 4.30...4.50  
> mm: (3.60...5.20)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 750  
Charge press hPa: 750  
TD travel mm: 1.50...2.10  
> mm: (1.00...2.60)

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750  
Charge press. hPa: 750  
Supply-pump  
pressure> bar: 4.30...4.90  
> bar: -

Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Charge press. hPa: 750  
Supply-pump  
pressure> bar: 5.40...6.00  
> bar: -

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2100  
Charge press. hPa: 750  
Supply-pump  
pressure> bar: 7.40...8.00  
> bar: -

Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 1250  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.10  
quantity> cm3/10s: (26.70...101.10)  
2nd speed 1/min: 2100  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...152.90  
quantity> cm3/10s: (40.60...167.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750  
Charge press. hPa: 750  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000s.: (0.00...3.00)

5th speed 1/min: 2600  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 9.0...13.00  
> 1000s.: (7.00...15.00)

8th speed 1/min: 2400  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 32.50...42.50  
> 1000s.: (31.50...43.50)

9th speed 1/min: 2100  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 42.00...44.00  
> 1000s.: (40.80...45.20)

12th speed 1/min: 1250  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 50.00...51.00  
> 1000s.: (48.3...52.7)

21th speed 1/min: 450  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 37.20...43.20  
> 1000s.: (34.70...45.70)

Electr. shutoff:

1st speed 1/min: 450  
Del. quantity cm3/: 0.00...3.00

> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -  
Idle delivery:  
Damper set qty.:  
1st speed 1/min: 1000  
Shutoff  
electromagnet>Volt: 12.0  
Del. quantity cm<sup>3</sup>/: 17.0...19.0  
> 1000S.: (14.0...22.0)  
LFG-setting:  
Idle delivery:  
1st speed 1/min: 450  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 16.00...18.00  
> 1000S.: (13.00...21.00)  
High Idle:  
1st speed 1/mi: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 16.00...18.00  
> 1000S.: (13.00...21.00)  
Rest delivery:  
1st speed 1/min: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 7.00...8.00  
> 1000S.: (5.50...9.50)  
Load-dependent start of delivery:  
Inj.-qty.dif.measurement:  
1st speed 1/min: 1250  
Charge press. hPa: -  
Inj.-qty. cm<sup>3</sup>/ : -4.5...6.5 "  
difference> 1000S.: -  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Charge press. hPa: -  
Inj.-qty. cm<sup>3</sup>/: 0.0...3.0 Z'  
difference> 1000S.: -  
Shutoff  
electromagnet Volt: 12.0  
TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1250

Charge press. hPa: -  
TD-travel : -2.5...2.9 '  
difference> mm: -  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1250  
Charge press. hPa: -  
Supply pump-  
pressure > : -0.1...0.3 "  
difference> bar: -  
Shutoff  
electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)  
gaz d'échappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1000  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 34...36.00  
> 1000S.: (32.00...38.00)

Automatic starting fuel delivery:

1st speed 1/min: 180  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 35.00...55.00  
> 1000S.: (35.00...55.00)

2nd speed 1/min: 380  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 31.00...51.00  
> 1000S.: (31.00...51.00)

3rd speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 37.00...43.00  
> 1000S.: (32.50...47.50)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8

KF mm: KOT  
MS mm: 1.0...1.4  
XK mm: MIKROSCH.  
XL mm: A=0.8...3.0  
Ya mm: 37.6...41.6  
Yb mm: 49.9...62.8

Remarks:

:

Ya = Distance between VE flange and speed-control lever in idle position  
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position  
Measurement point = edge of control lever on distributor-head end

